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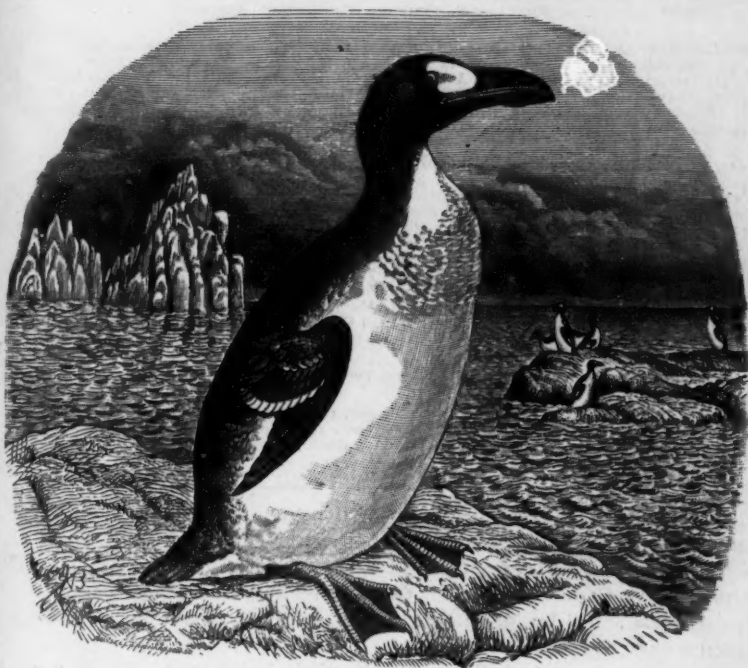
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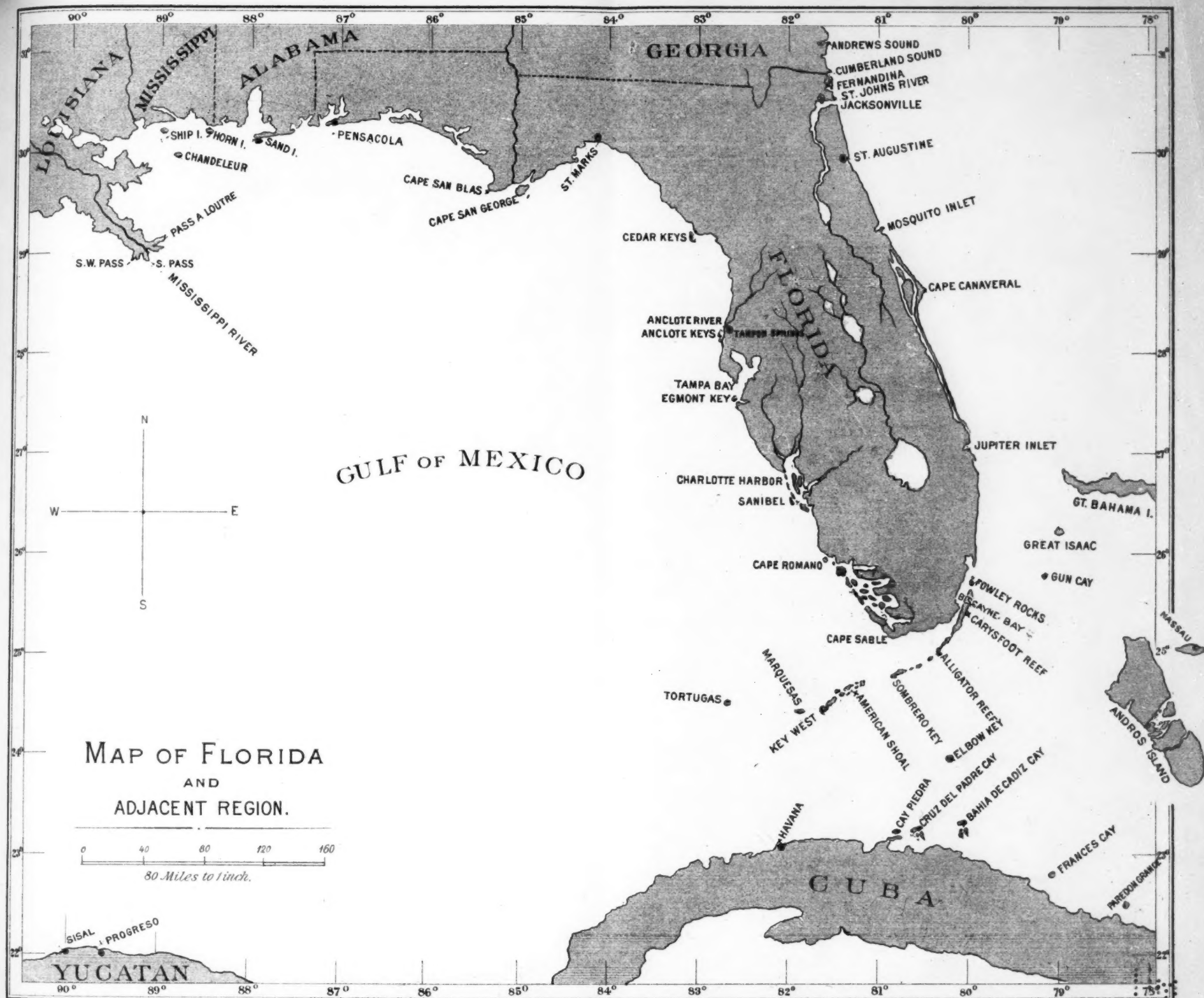
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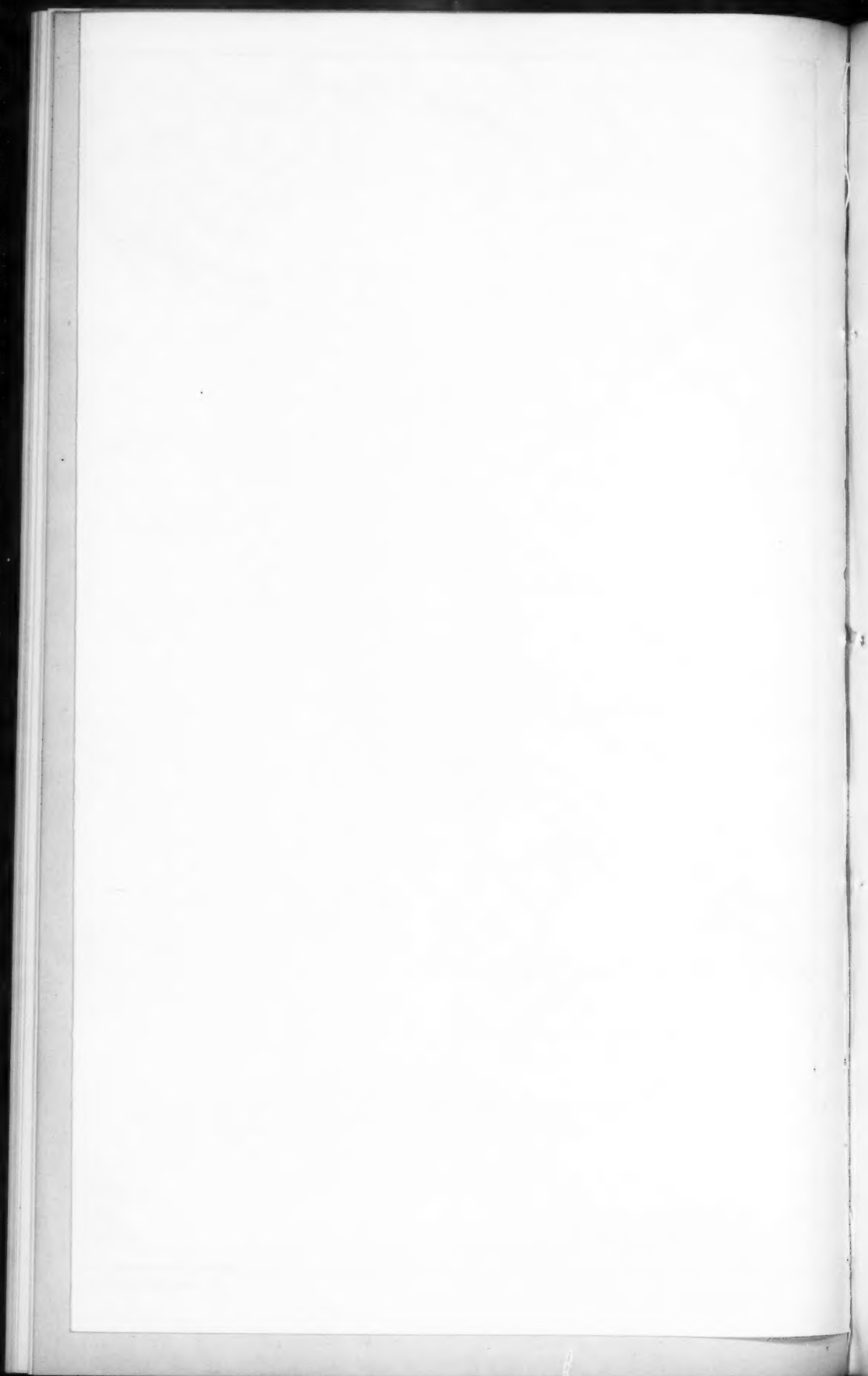
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MAP OF FLORIDA
AND
ADJACENT REGION.



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ON BIRDS OBSERVED AT THE DRY TORTUGAS,
FLORIDA, DURING PARTS OF MARCH
AND APRIL, 1890.

BY W. E. D. SCOTT.

THROUGH the kind permission of Dr. John B. Hamilton, Surgeon General of the Marine Hospital Service of the United States, I was allowed to make my headquarters for ornithological work at the Key West Quarantine Station on Garden Key, Dry Tortugas, Florida, during the past spring. I had planned an ornithological exploration along the Gulf coast of Florida, from Tarpon Springs south to Cape Sable and through the more important keys lying off the south coast of the peninsula from Bahia Honda westward. The field is a large one to cover even in a superficial manner, and after some work in the region about Cape Sable and adjacent keys, I proceeded to Bahia Honda and thence through the group of keys westward to Key West, where some three weeks were spent. Here I found that through the kindness of Capt. Bendire and Prof. G. Brown Goode, of the Smithsonian Institution, the Secretary of the Treasury of the United States had placed at my disposal the U. S. Revenue Cutter 'McLane,' Captain Munger in command, to convey myself and assistants to such points as I might desire to investigate.

I wish in this connection to express my thanks publicly to these gentlemen as well as to Professor Langley of the Smithsonian Institution, and to Dr. Murray, Surgeon in charge U. S.

Marine Hospital at Key West, and to Dr. Geddings, Surgeon in charge Key West Quarantine Station, Garden Key, Dry Tortugas, Florida, for their many kindnesses in facilitating the scientific work I had undertaken. To Capt. Smyth who succeeded to the command of the revenue cutter during the period of my work, I am under special obligations for the many courtesies shown me, and for very substantial aid rendered to the work I had in view.

The use of the revenue cutter saved much time in getting from Key West to the Tortugas, and as my entire party and collections were returned directly to the Anclote Keys by this vessel, much time was devoted to observing and collecting that would otherwise have been employed in sailing between these points. So on March 19 I sent the 'sharpie,' on which I had cruised from Tarpon Springs to Key West, back to the former point and embarked with two assistants on board the cutter which landed us at Garden Key, Dry Tortugas, the same afternoon.

The Dry Tortugas consist of a group of irregular, low, sand and coral islands, six in number, which are some sixty miles west of Key West, in north latitude $24^{\circ} 35'$ and west longitude $82^{\circ} 50'$, approximately. The only land between Key West and the Tortugas is the group of keys known as the Marquesas, and these keys are a little less than twenty miles west of Key West. So the nearest land to the Tortugas is rather more than forty miles away. The nearest mainland is Cape Romano, Florida, about 140 miles distant; and the Island of Cuba is, at its nearest point, about 90 miles distant. The coast of Yucatan is some 350 miles southwest, and directly to the westward in a straight line is the Mexican coast, about 750 miles away. So that this small group of little islands is very much isolated from any adjacent land, and all birds visiting it must pass over considerable distances of open sea.

The first island of the group to the eastward is known as East Key. It is a low, sandy, coral island, covered in parts with stunted bushes, and contains an area of perhaps eighteen acres. The two keys succeeding it are known as Middle Key and Hospital Key. They are both very small and are little more than sand banks protruding from the water, sparsely growing coarse grass and some low, stunted bushes being the only relief from total barren-

ness. Middle Key is rather more than a mile west of East Key, and in the same direction Hospital Key is about a mile from Middle Key. Southwest of Hospital Key and a mile from it is Garden Key, the centre of the group, and the most important of the islands, though by no means the largest. It is nearly circular, and the walls of Fort Jefferson originally extended to the water's edge entirely round the island. Now a considerable point of land has been formed to the south, and a like point to the north, outside of the walls by the action of the tide currents. There are perhaps altogether outside the walls three acres of land built up in this way in the past thirty years, and coarse grass, beach ivy, and some low bushes, make these areas quite green and agreeable to look at. The walls, which are about sixty feet high, inclose an area of some thirteen acres, at least three of which are occupied by buildings of a substantial character, and there is a harbor light on the east wall. So that nearly ten acres inside the fort are open space. Most of this is grown up with grass and beach ivy, but in one corner of the enclosure is a little grove of button-wood trees of perhaps half an acre in extent, and scattered over the rest of the area are about forty cocoanut palms and a few other button-wood trees. The trees in the grove and the others scattered about are all of fairly good size, but none are more than fifty feet high. There is no natural spring of fresh water at present on this or any other island of the group, but on this key are enormous cisterns of great capacity, which are replenished from the roofs of buildings and the tops of the walls of the fort. None of the water in these cisterns, however, is accessible to birds, as all are carefully covered or are under ground. This enclosure which I have thus briefly sketched was, I found, by far the most attractive point for land birds and the list that will presently be presented was practically made here.

About three quarters of a mile to the westward and a little south of Garden Key, is a small key, oval in shape and of perhaps eight acres in area. It is known as Bird Key. Here the different Gulls and Terns breed in myriads, those which are ground nesters finding room between and *under* the bushes in which the Noddies (*Anous stolidus*) build countless nests. But of this more presently.

Loggerhead Key, the extreme westerly island of the group, is a long island similar in character to those already described, but

larger. Near one end of it is a light-house of the first order and near it are the keeper's quarters and buildings, surrounded by some cocoanut palms, and a few scrubby button-wood trees. The usual low bushes are abundant, but, so far as I am aware or could learn, no birds breed at this point, though the superficial area of the island must be at least twenty acres and it seems admirably adapted to the breeding wants of Terns and the like.

After a careful study of all of these islands, supplemented by close questioning of the lighthouse-keepers and the sergeant who has been in charge of the government property at Garden Key for the past five years, I have arrived at the general conclusions: (1) That no land birds breed on any of the keys of the group. (2) That the stay of any land birds is of very short duration save on exceptional occasions which I shall have reason to allude to in more detail presently.

The migrations of the land species which I observed during my stay always coincided with the approach or occurrence of some pronounced aerial disturbance, and the advent of a strong north or northwest breeze always meant a very perceptible, and generally a marked, accession of the bird visitors. This applies to land birds in the main, and was not remarked regarding water birds, except in the case of the Herons, which will be noticed in detail further on. It seems probable that the flight of land birds was at this time of year quite constant and that the northwest winds arrested this flight and so increased the number of birds on the keys.

My stay at Garden Key was limited, and I left there on April 10. The following list includes all the birds that were observed up to that date and the records of several others, and notes regarding their occurrence, made by Dr. F. S. Goodman, of the U. S. Marine Hospital Service, stationed at the Quarantine Station on Garden Key. This gentleman kindly consented to carry on some work for me after my departure. In all cases he has forwarded to me the birds secured, together with the date of capture, etc. My thanks are due to him for this aid and in all instances I include his name in connection with information which he has furnished.

The list of birds observed at the Tortugas includes eighty species and though it will undoubtedly be greatly added to, yet enough land birds are present, fifty-seven species in all, to point apparently to the following conclusions.

That the birds of the Florida peninsula that have become specialized so as to present tangible characteristics of appearance, etc., are not migratory in a large sense, but are restricted to comparatively limited areas. Examples may be cited, such as *Vireo noveboracensis maynardi* and *Geothlypis trichas ignota*, which are represented on these keys during the times of migration by their closely allied representatives, which I take it are migratory species in a broad sense. There are many species of Woodpeckers on the peninsula, but none are to be considered as migratory save *Sphyrapicus varius*, which occurs, as has been shown, quite commonly on these keys and was the only species of Woodpecker observed. No Wrens were observed, yet as near as the Cape Sable region *Thryothorus ludovicianus miamensis* is common. On the adjacent mainland of the Florida peninsula *Cardinalis cardinalis*, *Pipilo erythrophthalmus alleni* and *Cyanocitta cristata florincola* are more or less abundant and are all of them common species that are not migratory and are not represented in the fauna that has been considered. All of the species of land birds observed at the Tortugas are migratory in the fullest sense, and the only specialized form noticed that is a breeding bird on the mainland, *Chordeiles virginianus chapmani*, is the only specialized race of Florida bird that seems the exception to the conclusion that *the breeding birds of the Florida peninsula cannot be regarded as migratory species*. Negative evidence in support of this conclusion seems to be furnished by the fact that almost every land species well known as a migrant on the mainland was observed during the time, about two months in all, that observations were carried on at the Dry Tortugas.

Further, it will be noticed that the tendency to representation of western races is marked. This is well illustrated in the case of *Dendroica dominica albilora* and *Dendroica palmarum*. The first bird is almost unknown on the mainland, but out of a series of eight Yellow-throated Warblers obtained, six are well-marked representatives of *D. d. albilora*, and though upward of twenty Palm Warblers are included in the birds taken at the Tortugas, only two are referable to the eastern race *hypochrysea* which is not at all rare in the region about Tarpon Springs.

1. *Larus argentatus smithsonianus*. HERRING GULL.—Rather common, especially during the earlier part of my stay.

2. *Larus atricilla*. LAUGHING GULL.—Rather common resident, and some birds undoubtedly breed at this point.

3. *Sterna maxima*. ROYAL TERN.—The commonest representative of the family. All of the individuals examined were moulting, or had almost completed the spring moult. The majority had assumed, or were assuming, the black cap of the adult; but at least twenty per cent, though their moult had taken place, remained in a phase similar to that of winter adult birds. About April 5 the moult was completed and, though the birds were still in flocks, mating in at least some cases had begun. The birds are known at this point as 'Redshanks,' and I am told that many breed here. The moult was in all cases complete, including the primary quills and tail-feathers.

4. *Sterna antillarum*. LEAST TERN.—These birds were not observed during my stay, but Dr. Goodman obtained them commonly in late April and early May, and they breed, I should judge, rather commonly. They are known by the egg hunters who resort to this point as 'Sandpeters.'

5. *Sterna fuliginosa*. SOOTY TERN.—This is another species that had not arrived at the Tortugas up to the time of my departure. Dr. Goodman, however, found that they arrived about the same time as the Noddies, but were, though plentiful, not so abundant as that species. They breed here in numbers, laying soon after their arrival, and are known to the egg hunters as the 'Egg Bird,' their eggs being more esteemed for food than those of the other Terns breeding here. Their breeding ground, as near as I could ascertain, is restricted to East Key and to Bird Key.

6. *Anous stolidus*. NODDY.—An abundant breeding species at the Tortugas, being mainly confined to Bird Key as a breeding place, and nesting in the low bushes. So far as I could learn, the birds are not residents at this point and I only observed three during my stay. This was one day late in March. They, with the Sooty Terns, appeared on April 20 in large numbers, but only remained two days, when, after inspecting their breeding grounds, all departed, to return about a week later in greatly increased numbers, when breeding was almost at once commenced. They leave, I am told by the people familiar with the region, early in the fall and are not seen, except an occasional one, till the following spring.

All of the Gulls and Terns that breed at the Dry Tortugas have been much diminished in numbers in the past ten years. It has always been the custom for some of the boats engaged in fishing and sponging about Key West to resort to these islands during the breeding season, and lately their depredations have really made a very appreciable difference in the birds that resort to this breeding ground. I am told that the eggs have a commercial value as an article of food in the markets of Key West, where barrels of birds' eggs from the Tortugas are brought every season of late years.

7. *Rynchops nigra*. BLACK SKIMMER.—The sergeant in charge of the government property on Garden Key showed me the head of one of

these birds. He had secured it a year or two ago, and it was the only one of the kind he had seen during a stay of five years at Garden Key.

8. *Sula sula* BOOBY.—A few Boobies were observed during my stay, but none secured. I believe them to have been this species. Later, on April 19, Dr. Goodman procured one which he sent to me. I am told by all the old sailors and sponge fishermen who have been familiar with this region for years, that formerly the Boobies were abundant, and bred and roosted in great numbers on East Key. They were very tame, and could be readily killed with sticks, and being much liked for the pot, have been gradually diminishing in numbers, till now it is unusual to see these birds, except out at sea or perched on some buoy that marks the passages through the outer reef. Mr. Atkins, while repairing the Key West and Cuban cable, in March and April, 1890, saw Boobies not at all uncommonly, and told me that, whenever they were obliged to mark any part of their work with buoys, on returning to such a point Boobies were almost always to be seen taking advantage of these roosting places. The birds were very tame and could be easily approached; but none were secured, as time did not permit.

9. *Phalacrocorax dilophus floridanus*. FLORIDA CORMORANT.—This species is apparently rare at the Tortugas. I learned from good authority that they were occasionally seen. None were observed by myself or party during our stay.

10. *Pelecanus fuscus*. BROWN PELICAN.—A few were observed every day during my stay, and their numbers were occasionally increased so that the birds were noticeably common. They were for the most part in the gray phase, and but few birds in breeding plumage were noticed. They do not breed at this point, but from reliable men I learn that there is a large breeding rookery of both these birds and Florida Cormorants on one of the keys of the Marquesas group.

11. *Fregata aquila*. MAN-O'-WAR-BIRD.—Noticed every day during my stay. They did not seem to come to this point for food, as they were rarely seen fishing for themselves or chasing the Terns for food. But almost every day about noon a party of from four to twenty of these birds came to Garden Key and, attaining a point just above the Harbor Light Tower on the northeast wall of the fort, they would begin to soar in what seemed a sort of way of resting. The circles were of about one hundred feet diameter; the flight very regular, slow and monotonous, with no apparent motion of the wings for hours. It tired one to look at them. They would keep this up till after dark at night; at least they were to be seen as long as there was light to distinguish them, and on one moonlight night, not long before I left the Tortugas, at eleven o'clock I saw five of these wonderful flyers still soaring high above the light tower. It must not be thought that one of these birds came and that another went away and that so the appearance of tireless soaring was carried on. They came and went away in parties, and solitary individuals were exceptional. They are said to greatly increase in numbers about the time the young Terns and Noddies are hatched, and to persecute the old birds bringing

food to their young. This I can readily believe, as such is their habit about Brown Pelican and Cormorant rookeries at like seasons. At the time referred to, I am told, they roost in great numbers on East Key.

12. *Ardea wardi*. WARD'S HERON.—A large Blue Heron, which was presumably this species, was observed on a single occasion, feeding on the beach of Bird Key.

13. *Ardea cœrulea*. LITTLE BLUE HERON.—A number of representatives of this species was observed on Garden Key. Individuals in both phases of plumage were taken. It was novel to see the birds adapt themselves to new conditions. I frequently saw this species and *Ardea virescens* alight in the embrasures of the fort, and to escape pursuit they would, instead of flying over the walls of the fort, dodge into one cannon port and out of another, with great success, easily avoiding any one, and becoming quickly lost to the hunter in the mazes and corridors at different levels.

14. *Ardea virescens*. GREEN HERON.—Plentiful on Garden Key during my stay, and Dr. Goodman collected some ten or fifteen individuals in the three weeks succeeding my departure. I have never seen Green Herons in the same abundance that I found them here. There were always several fishing in the moat outside of the walls of the fort, and I rarely passed through the little buttonwood grove inside of the fort without disturbing one or two roosting in these trees. I do not think that this or any other kind of Heron breeds in this group of islands, and regard all representatives of the family found here as nomadic. Their numbers generally increased just before the beginning of strong northerly winds.

15. *Nycticorax nycticorax nævius*. BLACK-CROWNED NIGHT HERON.—Dr. Goodman sent me a single representative of this species which he procured late in April.

16. *Nycticorax violaceus*. YELLOW-CROWNED NIGHT HERON.—During the time spent at the Tortugas five representatives of this Heron were obtained. All were adult, and in fine, unworn plumage. In the vicinity of Key West the low mangrove keys seem to be particularly adapted to the wants of the Yellow-crowned Night Heron, and the birds are abundant. I found them breeding, and with young just hatched, as early as March 5.

17. *Gallinula galeata*. FLORIDA GALLINULE.—I found on Middle Key a mummied specimen of this bird. No others were met with.

18. *Tringa minutilla*. LEAST SANDPIPER.—A single one taken, and no others observed. Dr. Goodman took one on April 25.

19. *Calidris arenaria*. SANDERLING.—Two small flocks were seen frequently during my stay and some seven or eight secured. These were the commonest shore birds.

20. *Actitis macularia*. SPOTTED SANDPIPER.—I obtained a single individual during the last day or two of my stay. Dr. Goodman found them to be a quite common bird late in April and early in May, and he sent me a large series which he had collected at that time.

21. *Ægialitis semipalmata*. SEMIPALMATED PLOVER.—A single one was taken on April 22 by Dr. Goodman.

22. *Ægialitis meloda circumcincta*. BELTED PIPING PLOVER. — A single individual of this subspecies was secured on March 27. It is a male.

23. *Arenaria interpres*. TURNSTONE.—A small flock of perhaps ten or twelve of these birds was frequently seen during my stay, and a few representatives were secured.

I had expected to find at the Dry Tortugas many water birds,—that is, great flocks of Gulls and Terns and Plover and Sandpipers; and it would seem an ideal place for all these kinds of birds. The falling tide exposes much reef that seems fairly to swarm with minute marine animal life, and the sand beaches reach down to such shoal water that in many places it is almost impossible to land a boat save on extreme high tide. Small fish could be seen in great schools in the areas of shoal water and it appeared to be altogether just the place for myriads of Gulls. But the kinds of Gulls and Terns that were noticed during my stay were not represented by large numbers of individuals, and the beach birds were insignificant. The list of water birds that I have presented only includes twenty-three species; and of these seven were added to the list by Dr. Goodman after my departure, so that *sixteen* species of water birds, represented by but comparatively small numbers of individuals, were all that were seen at the Dry Tortugas between March 20 and April 10, — a period of three weeks.

But if water birds were not where I had hoped to find them, land birds were present in numbers; and it was with increasing surprise that each day of my stay discovered some unlooked-for species that, in planning my trip to these islands for Noddies and rare Terns, for Boobies and perhaps some water wanderers among the Petrels, were not even thought of. The result of the collections and observations produces a little over fifty land birds, two of which were before unrecorded from North America. (See Auk, Vol. VII, No. 3, pp. 264-265.) This is perhaps the more remarkable when I reiterate that so far as my own observation goes and from all that I could gather from other sources not a single land species breeds on any of these keys.

24. *Accipiter velox*. SHARP-SHINNED HAWK.—Dr. Goodman sent me an adult female bird which he procured on May 1. This is the only record I have.

25. *Buteo lineatus alleni*. FLORIDA RED-SHOULDERED HAWK. — A single representative of this species visited Garden Key during my stay. I was unable to procure the bird, but had good opportunities to examine it with a glass.

26. *Falco peregrinus anatum*. DUCK HAWK. — A single bird was observed on one occasion on Bird Key and a pair soared round above the fort for an hour or more one afternoon about April 1.

27. *Falco columbarius*. PIGEON HAWK. — I secured one and saw several pass over the fort during the last few days of my stay. Later in April Dr. Goodman procured me a series of six of these birds, among which are two individuals that are moulting and one in a phase between the immature and adult plumage.

28. *Falco sparverius*. AMERICAN SPARROW HAWK. — Some dozen or more individuals were observed during my stay, and several were taken. They are said to be resident at Garden Key, *i.e.*, there are always some representatives present, but I could find no signs of their having nested on the island or on the others of the group, and so believe that while they may be always represented in the bird fauna of the island, yet it is by different individuals passing some little time at this point.

29. *Pandion haliaëtus carolinensis*. AMERICAN OSPREY. — A single one was noted.

30. *Coccyzus americanus*. YELLOW-BILLED CUCKOO. — This species was not common, but I obtained one on the 7th and another on the 9th of April. Dr. Goodman collected four individuals, April 28-30.

31. *Ceryle alcyon*. BELTED KINGFISHER. — There were one or two representatives of this species present on Garden Key during my stay, but the birds were never noticed as being at all common. But their numbers were greatly augmented during the later part of April, for Dr. Goodman sent me a large series which he secured at that time.

32. *Sphyrapicus varius*. YELLOW-BELLIED SAPSUCKER. — This was the only Woodpecker observed at the Tortugas, where it was not uncommon during my stay. In all I secured six representatives, the first on March 25 and the last on April 8; five of these are females. The only male noticed was taken on March 25 and approaches the subspecies *nuchalis*, having a few red feathers faintly representing the nuchal band. The bird is also of a decidedly deeper and brighter yellow below than average specimens of typical *varius*.

33. *Antrostomus carolinensis*. CHUCK-WILL'S-WIDOW. — A single bird (a male) was secured on April 8, and Dr. Goodman sent me three, two of which were taken April 19, and one May 1.

34. *Chordeiles virginianus chapmani*. FLORIDA NIGHTHAWK. — I obtained a Nighthawk on April 5, and Dr. Goodman took two others on April 13 and 14 respectively, all of which I refer to this subspecies.

35. *Trochilus colubris*. RUBY-THROATED HUMMINGBIRD. — On the 24th of March I noticed several male birds, which were the first I had seen at this point. Two of these were seen half a mile from the shore, as they passed by the open boat in which I went from one key to the other. From this time they were more or less common till the 29th, when the migration seemed to be at its height and I took seven adult males. After about April 2 I did not see any. Only one female was noted during my stay. The adult males were, however, as abundant, if not more so, than I ever noted them at any point on the mainland in the spring migration. It was very curious to meet these birds, when at considerable distance from land. Frequently while fishing and collecting

water birds I noticed Hummingbirds that were always identified, when close enough to be seen plainly, as this species. One morning I counted six pass by the boat in this way. At such times their flight was direct and very rapid, and all were going in a northerly direction. They flew about twenty-five feet above the water and did not appear in any way fatigued, nor show any desire to alight on the boat, as small birds crossing the water so frequently do. The individuals taken on Garden Key, a dozen or more in all, were in superb plumage and good condition. They fed on cultivated flowers, that had been planted near some of the houses, and seemed as much at home as in our northern flower beds.

36. *Tyrannus tyrannus*. KINGBIRD.—This was by far the commonest land bird met with at the Tortugas. I should think that the first individuals of the migration arrived about the time that we came to Garden Key. For a day or two not many were seen. But one evening just about sundown I noticed at least fifty coming into the enclosure of the fort over the walls. From this time, about March 25, until we left they were very abundant. Generally on any dead limb or on the tops of the trees at least four or five, and not infrequently a dozen, were to be seen. Once I counted twenty-three individuals in one tree at the same time. The birds remained common during our stay and Dr. Goodman took them in numbers all through April, and secured examples as late as May 2.

37. *Tyrannus dominicensis*. GRAY KINGBIRD.—On March 23 I secured two individuals on Garden Key, but one was very badly mutilated and was not preserved. These were all the Gray Kingbirds that I met with during my stay. In the latter part of April they came to the Tortugas in numbers, and Dr. Goodman sent me many individuals taken during the first week in May.

38. *Corvus americanus floridanus*. FLORIDA CROW.—No Crows were secured by me at the Tortugas, but two birds that I saw and heard one day near East Key I refer to this subspecies.

39. *Dolichonyx oryzivorus*. BOBOLINK.—Not met with during my stay, but Dr. Goodman secured two on April 30 and another on May 1, all adult males.

40. *Icterus spurius*. ORCHARD ORIOLE.—Dr. Goodman sent me one, an adult male in full plumage, which he took on April 11.

41. *Ammodramus sandwichensis savanna*. SAVANNA SPARROW.—A few of these birds were found on Bird Key during the first ten days of my stay, but later none were taken and presumably all had gone north.

42. *Ammodramus savannarum passerinus*. GRASSHOPPER SPARROW.—A single bird was secured on April 7.

43. *Piranga rubra*. SUMMER TANAGER.—Dr. Goodman sent me an adult male which he procured late in April.

44. *Piranga erythromelas*. SCARLET TANAGER.—I saw one on Garden Key, at two different times during the 29th of March. The bird was very shy, and I was unable to secure it. The next day it was gone.

45. *Petrochelidon fulva*. CUBAN CLIFF SWALLOW.—For records of the occurrence of this species at Garden Key, see Auk, Vol. VII, No. 3, p.

264. Among a flock of Tree Swallows (*Tachycineta bicolor*) that visited Garden Key on March 29 I saw an individual of this species which I was unable to obtain. This was after the capture of the two individuals already recorded.

46. *Chelidon erythrogaster*. BARN SWALLOW. — A single bird was observed, but not procured, on April 8. This was the only note during my stay, but Dr. Goodman took two on April 20, which he sent to me.

47. *Tachycineta bicolor*. TREE SWALLOW. — Not common at the Tortugas during my stay. A small flock made its appearance on March 29 and remained near by all that day and part of the next. There were in all about a dozen birds, two of which were taken. This is the entire record for the species, and is given in detail as it bears strongly, by a process of exclusion, on other Swallows observed.

48. *Calichelidon cyaneoviridis*. BAHAMAN SWALLOW. — For a note on the capture of this species, see Auk, Vol. VII, No. 3, p. 265. Another individual of the same species was seen the same day flying about over the enclosure of the Fort, but was not secured. The bird is so easily recognized when on the wing, as not to be readily confounded with any other species.

49. *Vireo altiloquus barbatulus*. BLACK-WHISKERED VIREO. — Dr. Goodman took a single representative on April 29. I did not meet with the species.

50. *Vireo olivaceus*. RED-EYED VIREO. — During my stay on the Tortugas I secured a single bird on March 23 and two others on the 29th of that month. These are all the records.

51. *Vireo flavifrons*. YELLOW-THROATED VIREO. — A single one was taken at Garden Key on March 24.

52. *Vireo noveboracensis*. WHITE-EYED VIREO. — At Garden Key I secured three Vireos that are undoubtedly to be referred to this species. It would seem natural to expect to find the representatives of the White-eyed Vireo at the Tortugas the same as at Key West. I had just come from that island and had there collected a large series of birds—upwards of fifty—that were all unquestionably *Vireo noveboracensis maynardi*, so that the material that I have has enabled me to substantiate conclusions already advanced in this journal. (See Auk, Vol. VII, No. 1, pp. 15-16.) I am now inclined to believe further, that the White-eyed Vireos breeding on the west coast of Florida, from at least Tarpon Springs south, are not migratory birds and change their location but little at any season. This being the case it would not be natural to expect to find the subspecies *maynardi* at the Tortugas, if, as I believe fully, no land birds breed at that point. The White-eyed Vireos that are the resident breeding birds at Tarpon Springs are not as extreme examples in the direction of *crassirostris*, structurally, as those collected at Key West; but they have as a whole so far diverged from true *noveboracensis*, that they appear to me referable to *maynardi* rather than to the former, and are in much the same category as the Carolina Wrens of the Tarpon region, which, while not as extreme as *miamensis*, yet diverge so far from true *ludovicianus* in the direction of *miamensis* as to be referable only to that form.

53. *Mniotilta varia*. BLACK-AND-WHITE WARBLER.—This was one of the commonest birds at the Tortugas during my stay, and was found there by Dr. Goodman as late as April 28. On March 23 the birds were particularly abundant at Garden Key.

54. *Protonotaria citrea*. PROTHONOTARY WARBLER.—This species was met with but once on Garden Key. An adult male flew into an open window on April 6.

55. *Helinaia swainsonii*. SWAINSON'S WARBLER.—Three individuals were obtained on Garden Key during my stay. A male was procured on March 25, and another flew in at an open window the next day. A female was taken on April 5 concluding all records of the species at this point.

56. *Helmitherus vermivorus*. WORM-EATING WARBLER.—Two males taken on April 5 are all that were recorded during my stay. Dr. Goodman obtained a single bird on April 13.

57. *Helminthophila bachmani*. BACHMAN'S WARBLER.—A male taken on March 26 and a female taken on April 9 comprise all the records that were made of this species on the Dry Tortugas.

58. *Helminthophila pinus*. BLUE-WINGED WARBLER.—Three were taken on March 23, and one each on March 24 and 25,—five individuals in all.

59. *Compsothlypis americana*. PARULA WARBLER.—A few were noted and taken on the different keys during my stay. The birds were most abundant March 24 and 25 on Garden Key.

60. *Dendroica tigrina*. CAPE MAY WARBLER.—I took a single bird on April 8, and Dr. Goodman obtained one on the 27th of that month.

61. *Dendroica caerulescens*. BLACK-THROATED BLUE WARBLER.—Dr. Goodman obtained one on April 24. I did not meet with the species.

62. *Dendroica coronata*. MYRTLE WARBLER.—The only one observed, a female, was taken on Garden Key March 31.

63. *Dendroica caerulea*. CERULEAN WARBLER.—The only one recorded, an adult male, was taken in the low bushes on Bird Key, March 23.

64. *Dendroica striata*. BLACKPOLL WARBLER.—Dr. Goodman took two of these birds, one on the 26th and the other on the 28th of April. I did not meet with them.

65. *Dendroica dominica*. YELLOW-THROATED WARBLER.—Three Warblers of this kind were taken on the different keys of the group. The records are a male, March 23; a male, March 29; and a female, April 8. These birds are all well marked and typical specimens.

67. *Dendroica dominica albilora*. SYCAMORE WARBLER.—Six examples of this subspecies were obtained on the keys of the group during my stay. All are very strongly marked and are to be easily selected at a glance from the true *dominica*. The records of this subspecies for Florida are, so far as I know, confined to the single bird taken by Mr. J. W. Atkins at Key West (see Auk, Vol. VII, No. 1, p. 20). There are no records that I am aware of for the mainland of the peninsula. It is not a little remarkable that the western form of a bird should be so well represented in the migratory season on the extreme western land off the Florida coast.

68. *Dendroica virens*. BLACK-THROATED GREEN WARBLER.—Dr. Goodman obtained a single specimen on April 26.

69. *Dendroica palmarum*. PALM WARBLER.—This was the commonest Warbler at the Tortugas during the time I spent there, and the twenty or more individuals taken form an interesting series, being in the moult and showing the change from the winter to the breeding plumage. Dr. Goodman took two of these birds on Garden Key on April 24 and 26.

70. *Dendroica palmarum hypochrysea*. YELLOW PALM WARBLER.—Two males taken March 22 and March 31, I refer to this subspecies. These are all the records I have obtained.

71. *Dendroica discolor*. PRAIRIE WARBLER.—During my stay these birds were not uncommon, being noted almost daily, and sometimes as many as half a dozen were seen at the same time.

72. *Seiurus aurocapillus*. OVENBIRD.—This bird was not common at the Tortugas, but two or three being secured or observed. Dr. Goodman obtained a single bird as late as April 21.

73. *Seiurus noveboracensis*. WATER-THRUSH.—Dr. Goodman obtained single representatives of this species on April 25 and May 2.

74. *Seiurus noveboracensis notabilis*. GRINNELL'S WATER-THRUSH.—Two Water-thrushes, a female March 26, and a male March 28, I refer to this well-marked subspecies. These were all the Water-thrushes I obtained at the Tortugas.

75. *Geothlypis formosa*. KENTUCKY WARBLER.—On March 29 I took an adult male, which is, so far as I am aware, the second record of the species in Florida.

76. *Geothlypis trichas*. MARYLAND YELLOW-THROAT.—A female was taken on March 21 and a male, on April 7. These are all the records from this group save a single bird taken by Dr. Goodman on April 26.

77. *Sylvania mitrata*. HOODED WARBLER.—This species was more or less common during my stay. On March 23 I took four and saw three others, and almost every day a single bird was seen or taken. Dr. Goodman obtained them as late as April 14.

78. *Setophaga ruticilla*. AMERICAN REDSTART.—Two males were taken during my stay, one on March 30 and one on April 5. Dr. Goodman found them to be quite common during the last week in April and up to May 2.

79. *Galeoscoptes carolinensis*. CATBIRD.—This species was not common during my stay, and only two were secured and no others noted. But Dr. Goodman found them rather abundant during the last week in April and the early part of May.

80. *Polioptila caerulea*. BLUE-GRAY GNATCATCHER.—Never very common, but met with several times, generally in pairs. Perhaps ten in all were seen.

A SUPPOSED NEW SPECIES OF HUMMINGBIRD IN
THE ROYAL ZOOLOGICAL MUSEUM OF
DRESDEN.

BY A. B. MEYER.

Eriocnemis aurea sp. nov.

E. cupreiventri (Fras.) similis, sed minor, corpore toto, gula et pectore exceptis, aureo-æneo, caudæ tectricibus longis prasinis, subcaudalibus cobaltinis plus minusve viridi marginatis, tibiærum pappis minoribus, diversus.

Long. al. 58; caud. 40; rostri 20 mm.

HAB. — Colombia.

E. cupreiventris measures: wing, 62 mm.; tail, 45 mm., bill of equal length. The coloration of the specimen above described differs so considerably from *cupreiventris* that it cannot be taken for an individual variation. While *cupreiventris* is only slightly tinted with bronze, *aurea* is covered with golden bronze all over, and in part of a most lively tint, even on the shorter tail and wing coverts. The throat and upper breast are lighter green than in *cupreiventris*, and in certain lights washed with bronze too, and each feather has a concealed white cross band as in *E. dybowskii* Tacz. Further, the long upper tail-coverts are not greenish blue, but green, and the under tail-coverts are not violet, but cobalt blue, only in certain lights they are hyacinth-blue, some margined with green. The color of the wings as well as of the tail is not as lively as in *cupreiventris*; and, finally, the white plumes on the thighs are much shorter and not as abundant. The specimen cannot be taken for a young *cupreiventris*, being much more brightly colored on the whole body, than the adult of this species.

SOMATERIA DRESSERI, THE AMERICAN EIDER.

BY GEORGE H. MACKAY.

THIS bird is found, as far as I have been able to learn, only on the Atlantic coast from Labrador to Delaware, collecting in large

numbers in the shoal waters adjacent to the Islands of Nantucket, Muskeget and Martha's Vineyard, where they pass the winter months, and it is the only one of the Eider group which has come under my immediate notice. Resembling somewhat the Pacific Eider, and also *S. mollissima*, they are easily distinguishable from the former by their size, being much smaller, and by their having the forehead much more prominent; it is elongated and depressed in the other two varieties. *S. dresseri* also has the frontal fleshy portion of the bill much wider and more prominent than in *mollissima*.

Their favorite ground on this coast is about those low-lying, partially submerged rocks which abound with their favorite food, mussels (*Modiola modiolus*), which are from one to four miles from the mainland. Here they find the black mussel which adheres to the sunken rocks, as also sea urchins. When living near some favorite rock, they always fly out to sea after their evening meal to roost, and on their return the following morning, if we take the rock as a centre, they come from points covering some sixty-five degrees, thus showing a remarkable dispersion during the night, for they leave the rock at night in one body; and it is curious that no matter from what point they start at daybreak, or before it, they are always pointed undeviatingly for the rock. In flying they have a habit of carrying the head very low, on which account it is easy to under-shoot them. They are most observing, and notice the least thing unusual on or about the rocks or with the decoys, which must be set so as to ride very steadily, and too much care cannot be exercised if a successful issue is to be expected.

They are expert divers, and if wounded are most difficult to capture; in fact I know of no birds more so, unless it may be the Loons. They swim deeply and steadily when at ease, and are rather slow and heavy in their movements, but withal graceful; but if frightened they are very agile, and if under water at such a time will always come out flying separately, no two being together. They dive for the mussels outside of the breaker which usually lies just outside the main rock, swimming underneath the surf and pulling off the mussel, returning to the surface again outside the breaker, but never coming up in it; and when a flock has been feeding an examination of the ledge, or rocks, reveals the white threads, like the mycelium of the mushroom, adhering

where the mussels have been torn off. When coming to feed in the morning, the earliest birds arrive before daybreak, and they continue coming until all have arrived. They invariably alight outside, some distance from the rock, and swim in always in a compact body, frequently almost on top of each other, carrying a wave before them. Some days they have what I call a diving morning, when it seems impossible to shoot them. I have known a flock of seventy-five to swim up in a body to within forty-five yards, when on shooting at them, they would all get under water before the shot could reach them. Such mornings were always the precursor of few if any Ducks.

The young drakes seem to keep together, one instance of which I may mention, when my friends Messrs. Nickerson and Phillips, with only one barrel each, shot eighteen young drakes dead out of a flock of twenty-three on the Salvages off Cape Ann, in the winter of 1860. These same gentlemen also shot eighty-seven one day in December, 1859, on the same rock. The feathers of the females are more easily detached than those of the drakes.

These Ducks will not come to the rocks or decoys if a dead bird is floating in the vicinity, just the opposite, in my experience, of the effect it has on other Ducks. I have known a large flock sitting some two miles to leeward to be disturbed, and take flight, by a dead Duck drifting down past them. This, however, does not appear to affect them in Muskeget waters, for they do not mind the dead birds around, and it is a common occurrence for them to alight to dead birds drifting. When they have not been disturbed the previous day and they leave at night for the open sea to roost, it is certain they will return the following morning, but if so disturbed it is problematical if they return at all.

It is only in those waters bounded by the islands of Nantucket, Muskeget and Martha's Vineyard that the American Eider may be said to congregate, in our vicinity, as is also the case with most of the other water fowl found on our coast. Here in immense numbers they live undisturbed during the winter months, with an abundance of sea-clams and scallops, black mussels (*Modiola modiolus*) and sweetmeats (*Crepidula fornicata*). Of these last they do not swallow the shells, but shuffle the meat out, discarding the shell, empty ones of which I found in great quantities on the shoals. All these are obtained by diving. On

March 18, 1875, on a return trip from the island of Muskeget where I had been after these Ducks, I saw and started from the water adjacent to Eel Point on Nantucket Island a body of these Ducks which I computed contained twelve thousand, and near them was a flock of Scoters and Velvet Ducks which I estimated contained twenty-five thousand. The first portion of the flock—and they all followed each other in their flight—extended as far as the eye could discern towards Great Point on the same island, the distance being eleven miles from where I was. It was the largest body of wild fowl I ever saw.

The American Eiders remain in these waters until the latter part of April, when they depart for the North. Before starting they frequent the sand bars and shoals which are out of water, on which they like to crawl up and sit, and where also they obtain gravel,—to serve as ballast, according to the local gunners. At this time they are more easily decoyed than at any other, coming to bunches of seaweed rolled up and placed on the beach near the water, which seem to answer very well the purpose of decoys, also to the dead birds placed on the shore as soon as they are shot. They can also be waved in from quite a distance when flying along the shore outside, by shaking a black cloth or gun case at intervals, by which means they are frequently brought within shooting range. When flying along the shore they seem to avoid passing over sand spits where the sea is breaking sufficiently to make white water, preferring to go to either side of them. Neither will they come on shore to crawl up where there is ice or snow, that is when the shore has been bare previous to a snowstorm.

It frequently happens that the scallops in these waters change their location by swimming to other places, and oftentimes the beds of sea-clams become covered up with a layer of sand through the agency of storms, but the Eiders discover the new place, or other beds, with surprising intelligence, so quickly as to cause them apparently little inconvenience.

In these waters the American Eider is known by the name of 'Shoal Duck.' In Rhode Island and Shelter Island waters they are called 'Wamps.' To the north of Cape Cod they are known by the name of 'Sea Ducks.'

In closing I would mention as one instance of how alive they are to the presence of their favorite food, the black mussel, that

the United States Government has built out from the north shore of Nantucket, close to the harbor entrance where boats are continually passing, a rough stone jetty nearly a mile long, at the extremity of which is an iron rod with a moveable red lantern for the use of the daily steamboat. Last year the man who tends the light told me that as the mussels were growing there in considerable quantity they were attracting the Shoal Ducks, or Eiders, which were coming daily in increasing numbers to feed on them, frequently crawling out of the water onto the rocks. They continued to arrive in greater numbers until some eight hundred had collected, when they commenced to shoot them. The keeper told me that they were observing, so much so that they perceived a difference if the lantern was not in place at the top of the iron rod, and if he did not desire to have any shooting there, all he had to do was to leave the lantern half way down the rod instead of in place at the top, and no Ducks could be induced to come near the jetty to feed, although sitting off on the water in detached groups, where they could observe everything that took place. I should estimate the number of Eiders living around this jetty at present (March 27, 1890) to be about fifteen hundred.

ON A COLLECTION OF BIRDS FROM FORT CHURCHILL, HUDSON'S BAY.

BY W. EAGLE CLARKE.

IN the year 1845, Dr. Gillespie, Junior, presented to the Edinburgh Museum a series of bird skins collected by himself during his residence at Fort Churchill as an officer of the Hudson's Bay Company. This collection has hitherto remained unrecorded, but an account of it may, perhaps, be deemed worthy of a place in 'The Auk' since it is thought that little or nothing has been contributed to the avifauna of the district around this station — the most northerly outpost of civilized man's residence on the western shores of this great inland sea.

Fort Churchill was,* doubtless, an interesting and singularly favorably situated station for ornithological work, for it combined several important advantages. It lay at the mouth of the great river after which it took its name, and in proximity to the sea, and must thus have been an exceptionally good locality for observing and obtaining migratory species. But it had further advantages, for in its vicinity lies the northern limit of forest growth, and hence the boundary to the range of woodland species; while just beyond this natural barrier are those desolate arctic wilds, not inappropriately alluded to by Sir John Richardson in the 'Fauna Boreali-Americana' as the "Barren Grounds," a region, however, affording a congenial summer haunt for Waders, Ducks, and other birds for which the far north offers peculiar attractions.

It is a matter for regret that no data accompany the specimens, which represent seventy-seven species, but it should be remarked however, that each bears a label upon which is written "Churchill Fort, Hudson's Bay, Dr. Gillespie, Junr." The classification and nomenclature adopted are those of the A. O. U. Check-List, while the species have been determined in accordance with the same authority, as set forth by Mr. Robert Ridgway in his excellent and useful 'Manual of North American Birds.' The writer alone is responsible for the naming of the specimens.

Colymbus auritus.—An adult in summer plumage.

Urinator imber.—An adult in summer plumage.

Urinator arcticus.—An adult in summer plumage.

Urinator lumme.—An adult in summer plumage.

Stercorarius pomarinus.—An adult.

Stercorarius parasiticus.—An adult of the melanistic form.

Larus philadelphia.—A young bird in first plumage.

Sterna paradisæa.—*a, b*, adults in summer plumage.

Merganser serrator.—An adult male.

Anas boschas.—An adult male.

Anas carolinensis.—*a, b*, adult females.

Anas americana.—An adult male.

Charitonetta albeola.—*a, b*, adult males.

Clangula hyemalis.—*a*, adult male in summer plumage; *b*, adult female in summer plumage; *c*, adult female in transition plumage.

Oidemia americana.—An adult male.

Botaurus lentiginosus.—An adult.

* The word *was* is used advisedly, for it seems doubtful if the station is now maintained.

Porzana carolina.—*a, b*, adults.

Crymophilus fulcarius.—*a*, adult male in summer plumage; *b*, adult female in summer plumage.

Phalaropus lobatus.—*a, b, c*, adults in summer plumage.

Gallinago delicata.—*a, b*, adults.

Macrorhamphus griseus.—*a, b*, adults in summer plumage.

Micropalama himantopus.—An adult in summer plumage.

Tringa alpina pacifica.—*a, b*, adults in summer plumage. These specimens seem to agree perfectly with Scotch specimens of *Tringa alpina*, with which they have been compared. After an examination of the few American specimens of this bird at my disposal I have come to the conclusion that even the eastern American Dunlins are liable to considerable variation. An adult specimen from New Jersey in full summer plumage is much brighter, though paler, in color than any European specimen I have seen; and the breast is whiter and much less streaked with dusky; the bill, however, is only 1.30 inches in length. An adult in full winter plumage, and also from New Jersey, is a deep brown on the upper surface and quite different from the European bird at the same season, and the bill is no less than 1.70 inches in length. The various dimensions of these four specimens are as follows:

	<i>Wing</i>	<i>Culmen</i>	<i>Tarsus</i>
Fort Churchill <i>a</i>	4.57 in.	1.43 in.	.97 in.
Fort Churchill <i>b</i>	4.65 "	1.52 "	1.02 "
New Jersey (summer)	4.65 "	1.30 "	.96 "
New Jersey (winter)	4.85 "	1.70 "	1.06 "

Ereunetes pusillus.—*a*, adult male in summer plumage; *b*, adult female in summer plumage.

Calidris arenaria.—An adult in summer plumage.

Limosa hæmastica.—*a*, adult in summer plumage; *b*, adult in spring plumage—*i.e.*, with traces of summer plumage, but its winter dress predominating.

Totanus melanoleucus.—An adult in summer plumage.

Totanus flavipes.—Adult in summer plumage.

Actitis macularia.—An adult in summer plumage.

Numenius hudsonicus.—An adult.

Charadrius squatarola.—*a, b*, adults in summer plumage.

Charadrius dominicus.—An adult in summer plumage.

Ægialitis semipalmata.—*a, b*, adults in summer plumage.

Arenaria interpres.—*a, b, c*, adults in summer plumage; *d*, a bird of the year in first plumage.

Dendragapus canadensis.—An adult male.

Lagopus lagopus.—*a, b*, adults in winter dress. In specimen *a*, the wing, from the carpal joint to the end of the longest primary, measures no less than 8.45 inches.

Lagopus rupestris.—*a*, male in winter plumage; *b*, female in winter plumage.

- Ectopistes migratorius*.—*a*, adult male; *b*, adult female.
Circus hudsonius.—An immature specimen.
Accipiter atricapillus.—An adult female.
Archibuteo lagopus sancti-johannis.—A light colored specimen practically indistinguishable from Scotch examples of *Archibuteo lagopus*, in immature plumage, in the Edinburgh Museum collection.
Falco rusticolus gyrfalco.—*a*, adult female; *b*, young male in first plumage.
Falco peregrinus anatum.—An adult male.
Falco columbarius.—An adult female.
Asio accipitrinus.—An adult.
Bubo virginianus.—An adult.
Surnia ulula caparoch.—An adult.
Ceryle alcyon.—An adult male.
Dryobates villosus leucomelas.—*a*, adult male; *b*, female.
Picoides americanus.—*a*, *b*, *c*, adult males; *d*, *e*, adult females.
Spyrapicus varius.—An adult female.
Colaptes auratus.—An adult female.
Chordeiles virginianus.—An adult female.
Otocoris alpestris.—*a*, *b*, *c*, *d*, adults in summer plumage; *e*, young bird in first plumage.
Perisoreus canadensis.—An adult.
Scolecophagus carolinus.—*a*, adult male in summer plumage; *b*, an immature bird.
Quiscalus quiscula æneus.—An adult male.
Pinicola enucleator.—*a*, *b*, adult males; *c*, male in orange-red plumage; *d*, adult female.
Loxia leucoptera.—*a*, *b*, *c*, adult males; *d*, *e*, adult females.
Acanthis hornemannii.—*a*, *b*, adults.
Plectrophenax nivalis.—Adult female in spring dress.
Calcarius lapponicus.—*a*, *b*, *c*, adult males in summer plumage; *d*, *e*, adult females in summer plumage; *f*, young bird in first plumage.
Zonotrichia leucophrys.—An adult.
Zonotrichia albicollis.—*a*, adult male; *b*, adult female.
Spizella monticola.—*a*, *b*, *c*, *d*, *e*, adults.
Junco hyemalis.—*a*, *b*, adults.
Tachycineta bicolor.—An adult male.
Lanius borealis.—*a*, *b*, adults in summer plumage.
Dendroica æstiva.—*a*, *b*, adult males.
Dendroica coronata.—*a*, *b*, adult males.
Dendroica striata.—*a*, an adult male; *b*, a young bird in first plumage.
Dendroica palmarum.—An adult.
Sitta carolinensis.—An adult female.
Parus hudsonicus.—*a*, *b*, *c*, *d*, adults.
Regulus calendula.—An adult.
Turdus aliciae.—An adult.
Merula migratoria.—*a*, *b*, adults in summer plumage; *c*, adult with traces of winter plumage.

THE NESTING OF THE YELLOW-THROATED WARBLER AT RALEIGH, N. C.

BY C. S. BRIMLEY.

THE YELLOW-THROATED WARBLER (*Dendroica dominica*) is a regular summer visitor at Raleigh, arriving in the spring from the middle to the end of March and leaving in September. While it is more or less numerous in all large tracts of pines and in all mixed woods containing large pines, it cannot be called plentiful anywhere; a fifty-acre tract of pines about half a mile from my house contains just five pairs this year, and they are more numerous there than in any other place I know of.

This Warbler commences nesting early in April, selecting as a site for its nest a horizontal limb usually, but not always, of a tall thin pine. Sometimes it builds its nest where the limb forks, but more often right on the limb, attached only to the limb itself or else laced to small twigs as well; one nest was built among and attached to small twigs only, but this nest was also essentially different in construction from any other we have ever taken and resembled the others only in the rough and unfinished character of the rim. The nest is usually much like a Pine Warbler's in general character, but lacks the black grape-vine bark which gives the latter such a dark appearance, and is also usually less compact, especially about the rim. The materials of which it is composed are weed stems, strips of trumpet-vine bark, fine grass, and caterpillar silk; the lining is of horsehair or feathers or both. The nest varies a good deal in size. The height of the nest varies from twenty to ninety feet or more, and the distance from the trunk from about three to twelve feet. While the female is building, she usually keeps silent, but sometimes chirps; the male is apt to be singing somewhere near by, but apparently does not care to go near the nest as he does not accompany the female when she goes to the nest to build. At such times the female often takes a roundabout route to get there, and her flight is usually more desultory and less suggestive than the straight business-like flight of the female Pine Warbler when approaching her nest.

The female apparently does all the incubating, as we have never

taken a nest yet when the male was not singing near by, though we have on three occasions observed the female come to the nest early in the morning just before we took it and so presume she has to feed herself as well as do all the work. This Warbler is the closest sitter I am acquainted with, never leaving the nest till the limb it is built on is jarred, and in a large majority of cases, not till the nest itself is touched. When she does conclude to quit she slips out of the nest and flutters vertically downward some six feet or more, but makes no pretense of a broken wing or any other affliction. The set is usually four, occasionally three. When one set is taken, the female goes to work, builds another nest, and lays another set.

The nest is very hard to find, in fact the only way to find one is to watch a pair of birds day after day until at last the female is detected building, and the nest located. As seems to be the case generally here with Pine Warblers and Gnatcatchers, it is easier to detect the Yellow-throated Warbler building when it first commences than later on when it is putting in the finishing touches.

The following list of all the nests we have found here will give a better idea of several details than any amount of general description.

1. Nest found April 25, 1888, about one third built in a large old field pine, the female only building. This was in a narrow strip of good-sized pines adjoining a large tract of woods. The nest was taken on May 11, and contained only one fresh egg. The nest was 65 feet high, and 12 feet from the trunk, and was larger and deeper than a Pine Warbler's, but the rim was thinner and more ragged, the nest was composed of grape-vine bark, horsehair, and a great quantity of white chicken feathers. The nest was not built on a limb, but attached by the sides and bottom to a number of small twigs, thus differing in situation, as well as in construction, from any other taken so far.

2. Nest found April 25, 1889, apparently just finished, but with no eggs. Took set of four from this nest on May 4, flushing the female from the nest on jarring the limb, eggs fresh. The nest was 20 feet high, 7 feet from the trunk, on a horizontal limb of the pine, and also laced to small twigs. The nest was much like a Pine Warbler's, but smaller and grayer, lacking the grape-vine bark of the latter. The nest was in a fifty-acre tract of pines where most of this year's nests were found.

3. Nest found just commenced on April 5, 1890, 42 feet, built on fork of pine limb some eight feet from the trunk. The set of four fresh eggs was taken April 25. The bird came to the nest while my brother was putting his climbers on. The nest was much like a Pine Warbler's, but with

no grapevine bark, but instead some bark of the trumpet-vine, and heavily lined with feathers; the rim was quite thin and loose, otherwise the nest was solid enough.

4. April 29, I found the same pair re-building, this time on a pine limb some 47 feet high and four or five feet from the trunk. On May 12 we took our second set of four from this pair, the eggs containing small embryos. The pine was tall and slim, and we had to stay it with ropes while taking the nest. The female stayed on the nest till it was touched. Nest similar to the preceding two.

5. May 15, I found this pair again re-building in a pine near where their first nest was (the second nest having been some 200 yards east of the first one), the pine being even taller and thinner than before. The nest was 58 feet high and 6 feet from the trunk, and the pine swayed frightfully, although stayed with ropes, when we took our third set of four on May 26. This nest was quite small, otherwise like the others.

6. On May 28 I started for the fourth time to look up this pair and duly found them, in no way discouraged, again building, this time near the second nest and in a respectable sort of pine, 44 feet high and four or five from the trunk. On June 7 we took our fourth set of four from this pair, and I think we were satisfied.

7. Found a second pair of birds building a well-built nest on a good-sized limb of a large pine, 42 feet high and about seven from the trunk. On April 22, 1890, we took a set of four fresh eggs from this nest. The nest was composed of weed stems, grass stems, and caterpillar silk, and heavily lined with horsehair.

8. On May 8, 1890, we found and again took a set of four from this pair. The nest was 38 feet high and some ten feet from the trunk, and was built and almost hidden in the lateral fork of a large limb. We found the nest by watching the bird go to it after feeding. This nest was made of the stems and leaves of a gray weed known as rabbit tobacco, pieces of cotton, cocoon silk, fine grass and horsehair, and weed stems, and was heavily lined with horsehair. The eggs contained small embryos.

9. April 24, I found a third pair of birds building a well-built nest in a medium-sized pine, 43 feet high and four feet from trunk. Took four eggs, slightly incubated, from it on May 3. The bird went to the nest while we were preparing to take it. This nest was very large, with very thick, strong walls made very largely of rabbit tobacco, the outside almost entirely of it, and was lined with feathers and horsehair. The nest, superficially, reminded one more of that of the Prairie Warbler, a bird which uses rabbit tobacco a great deal, but was much larger and thicker.

10. May 2, I found a nest just started by a fourth pair on a pine limb 44 feet high, some five or six from the trunk. The female was building in a desultory sort of way. We took a set of four fresh eggs on May 8. This nest was very small and only scantily lined with feathers, the lining being so thin that the eggs would have fallen through in one place if there had been nothing underneath.

11. I found this last pair re-building May 19, 43 feet from ground and

five or six from the trunk. We took a set of three on May 30. This nest was small, but better made than the previous one. The eggs contained small embryos.

All of the foregoing were found in a fifty-acre tract of pine woods. The following nests were found in mixed woods.

12. April 14, I found a nest just started in a tall, very thin pine some 50 feet high; a heavy rain came next day and the nest was deserted.

13. April 24, I found this pair re-building in a huge pine not far from the first, the nest some 90 feet high and 15 from the trunk. I did not trouble that pair any more.

BIRDS FOUND BREEDING ON SEVEN MILE BEACH, NEW JERSEY.

BY CHARLES S. SHICK.

ABOUT five years ago one of the richest ornithological fields open to collectors was Seven Mile Beach in Cape May County, New Jersey, a beautiful island, over seven miles long and from a quarter of a mile to a mile wide, densely covered with cedar, oak, pine, holly, sassafras and birch trees, nearly every one of them covered with long, rich pendants of *usnea* moss. The natural advantages offered here for nest building are unsurpassed.

I have watched the encroachments of man year after year. until now, to cap the climax, a seashore resort has been started and the axe of the woodman is clearing away many of the fine old trees on which the Fish Hawks formerly built their homes. In a few years more this island, which five years ago was the collector's paradise, will no longer be frequented by many birds that now summer there. I give a list of birds breeding there at the present time.

Larus atricilla. LAUGHING GULL.—During my eight years residence in South Jersey I have found this bird breeding abundantly each summer. On Gull Island, near Hereford Inlet, at the southern point of Seven Mile Beach, a vast colony congregates every year. Early in May and again about June 2 full sets of eggs can be found. The nests are built of sedge

grass, generally along the border of a salt pond. They are also known by the name of Black-headed Gull.

Gelochelidon nilotica. GULL-BILLED TERN.—A rather common visitor. Breeds on the meadows and sand flats at the southern point of the island. I have found it breeding in company with *Larus atricilla*. Mr. Harry G. Parker has also taken eggs in the same locality.

Sterna forsteri. FORSTER'S TERN.—Not as common as either of the above. It was formerly very abundant. It associates with *Sterna hirundo*.

Sterna hirundo. COMMON TERN.—Very common, breeding on sand flats and along the beach, out of reach of the tide. I have taken many sets of eggs each year. 'Sea Swallow' and 'Summer Gull' are two of the local names.

Sterna dougalli. ROSEATE TERN.—Breeds in company with the Common Tern, from which its eggs cannot with certainty be distinguished. They are not nearly as plentiful as they were five years ago, when it was an easy task to go out and gather several bushels of eggs in a few hours.

Sterna antillarum. LEAST TERN.—A very common breeder. I have taken eggs every year since 1882. I must state, however, that all of the Terns are gradually forsaking their former breeding grounds on account of the new seaside resorts that are being started on all the islands. Formerly many hundred pairs occupied a small sand flat near Sea Isle City, but they are now all gone, not one pair breeding where a few years ago hundreds raised their young.

Rynchops nigra. BLACK SKIMMER.—Breeds, but not very commonly. Several years ago I could go out during the breeding season and take all the sets I desired; they are very scarce now. Residents throughout Cape May County call this bird 'Shearwater,' 'Razorbill,' and 'Broadbill.'

Ardea cœrulea. LITTLE BLUE HERON.—A few pairs still hold out in a thick grove of cedar trees on the lower part of the island. Capt. William Sutton, an old resident in this locality, informs me that in former years, there was a large heronry on this beach, which the residents of the mainland would visit every spring, when they would secure hundreds of their eggs. He stated that even after taking large basketfuls, one could not notice a diminishing of nests. He was confident that several thousand pairs occupied the lower end of Seven Mile Beach. 'Booby' is its most common name in this locality.

Ardea virescens. GREEN HERON; 'SQUAWK'; 'FLY-UP-THE-CREEK'; 'BOOBY.'—It is very abundant and at any time after May 10 can be found in the deep woods, along the edge of the meadows, and even on the beach in search of food. It nests in low bushes, within a foot of the ground, and in trees fifty feet from terra firma. Its nest is built in a very slovenly fashion, and in many cases I have counted the three or four pale green eggs from the foot of the tree. This season I took many fine sets of three and four eggs each.

Nycticorax nycticorax nœvius. BLACK-CROWNED NIGHT HERON.—Not common. Breeds in small colonies among the cedar trees near swamps.

Rallus longirostris crepitans. CLAPPER RAIL.—This is one of the

most common birds to be found here. Every small creek has its dozen or more Clapper's nests along its banks in the high sedge grass. It is quite easy to secure several hundred eggs in a day. The largest set I ever took, was found here on Seven Mile Beach and contained thirteen eggs. I know certainly that the Clapper Rail remains here through the winter, for several times in January and February of this year I flushed the birds while walking the meadows in search of Ducks. My dog also flushed several on different occasions. They bear the local name of 'Mud Hen.'

Symphemia semipalmata. WILLET.—Rather common. Found breeding late in May and early in June on the salt marshes adjacent to the main island. Last year I found two sets of four eggs each, among a colony of Laughing Gulls on Gull Island. They are not as numerous as they were formerly.

Actitis macularia. SPOTTED SANDPIPER.—This beautiful wader is found abundantly all over the island. Its *peet, peet, peet-weet* can be heard from every quarter. It breeds in the higher parts of the island, generally on a sandy knoll in the high, rank sedge grass.

Ægialitis meloda. PIPING PLOVER.—The dull, mournful, single note of this bird can be heard at any hour of the day along the beach. It has a habit, if you approach its nest, of leaving it before you come within several hundred feet. Running along the ground in front of you, it will not readily take wing. I have walked several miles along the beach with a Piping Plover in front of me all the way. On this island it breeds in very moderate numbers. Mr. Harry G. Parker took a number of sets last season along the beach shingle, out of the reach of the tide.

Pandion haliaëtus carolinensis. AMERICAN OSPREY.—Very common. Since 1884 it has been gradually becoming scarcer each year. I know that in 1884 fully one hundred pairs occupied nests in every part of the island, while this year not more than one fourth of that number remain. Their usual complement of eggs is three, while sets of two and four are not uncommon.

Syrnium nebulosum. BARRED OWL.—Probably breeding. On May 10 I flushed a pair from a clump of cedar trees and they flew away to another clump some distance off. I searched for the nest in vain. Mr. Harry G. Parker found these birds in the same place a few days later.

Ceryle alcyon. BELTED KINGFISHER.—I found a nest in a hollow stump in the summer of 1886, and from the appearance of the cavity am sure it was occupied by a pair of Belted Kingfishers that were in the vicinity all summer.

Tyrannus tyrannus. KINGBIRD.—This bird is comparatively common, and in June can be found breeding in every clump of cedar trees on the island. It raises two broods every year.

Contopus virens. WOOD PEWEE.—This is one of the rare birds here, but a few pairs rear their young on the island. On the mainland they are common.

Corvus americanus. AMERICAN CROW.—Quite common, breeding abundantly on the outer edge or strip of cedars near the meadows.

Corvus ossifragus. FISH CROW.— Though not as numerous as *Corvus americanus*, this Crow is not to be classed as rare. It breeds abundantly in May in the clumps of cedar trees near the beach. On May 16 Mr. Harry G. Parker found a number of sets of eggs in a grove of cedars near the Seven Mile Beach Life-saving Station. Incubation was but slightly advanced. My notes on the Fish Crow in the 'Bay State Oölogist' for March, 1889, were wrong, as the Crow I found breeding on Peck's Beach in April was not the Fish Crow, but *Corvus americanus*. The breeding time of the Fish Crow is from the 5th to the 25th of May. Fresh eggs can be found early in May.

Molothrus ater. COWBIRD.— I have taken a number of sets of Chipping Sparrow's nests containing single eggs of this bird, and I have also found their eggs in the nests of Song Sparrows.

(To be continued.)

NOTES ON HABITS AND NESTING OF *VIREO FLAVOVIRIDIS* (CASS.).

BY GEORGE K. CHERRIE.

AT SAN JOSE, Costa Rica, the Yellow-green Vireo (*Vireo flavoviridis*) is not a permanent resident, disappearing at the beginning of the dry season together with the Red-eyed Vireo (*Vireo olivaceus*), which latter bird is seen only for a very short time and is very rare as it passes on its journey south. The last record I have of *V. flavoviridis* for 1889 is that of the night of September 28, when, in company with seven other species of North American birds—none of which are found within the limits of Costa Rica during the breeding season,—they rushed, in terrified groups, to death, bewildered by the electric lights. The bodies of those picked up the following morning, and for some three weeks previous, were noted as being extremely fat, a thing that had not in any way attracted my attention previous to the migration.

By April to they are quite common, and on April 24, 1889, I saw one carrying nesting material. At this season they are almost always seen in pairs, and apparently have a pent up supply of song that is liable to burst forth at almost any moment, wherein they differ from their near relatives, *V. olivaceus*, which at this

time are only seen as single individuals and apparently are not in a singing mood.

Although I first saw the birds carrying nesting material on April 24, and frequently thereafter, — for they breed abundantly here, — I did not succeed in finding a nest until May 12, when I collected one containing two fresh eggs. The nest in all essential features is like those of *V. olivaceus*. It was situated about four feet from the ground in a shrub (*Dracopis volanais*), suspended between small forks, and overhung by a bunch of leaves which completely concealed it. Outside the diameter is 2.50 inches; inside, at top, 1.75; lower down it is somewhat greater, for the rim is a trifle contracted. Depth outside, 2.25; inside, 1.75. The lining of the nest is very fine dry grass. The outside is covered with soft dry leaves and a kind of papery bark such as peels from a birch tree, all bound and held in place by spider webs. The eggs, measuring $.81 \times .57$ and $.81 \times .58$ inch, are white, speckled, chiefly at the larger end, with spots varying in color from a dark chestnut to an orange rufous, the chestnut predominating.

A second nest containing three fresh eggs was taken May 21. In this instance the nest was at the extreme end of a large limb of a tree on the river bank, about ten feet above the water. In form and materials it was similar to the last. The eggs measure $.76 \times .58$, $.75 \times .57$ and $.79 \times .60$ inch. In color and markings they are exactly like the last. When discovered, the female was on the nest and refused to move until the limb was shaken.

A third nest and three much incubated eggs were secured May 26. The eggs measure $.83 \times .56$, $.84 \times .55$, and $.84 \times .56$ inch. In color and markings they are like those described above. The nest was about seven feet from the ground, hanging between the twigs of a small tree on the river bank. It was admirably concealed by leaves from above and the sides. It is typical in construction and location. Depth outside from the supporting twigs 2.75, inside 2.00 inches. The rim, bounded on two sides by the supporting twigs and on the other by the free edge of the nest, forms an equilateral triangle having sides two inches long. Outside diameter 2.50 inches. The female was shot as she left the nest.

Both male and female are always to be found very near the nest, the male warbling joyously, but stopping to take an insect

between whiles. When disturbed the birds remain quite near, but are not demonstrative in their uneasiness, usually keeping well concealed from view and uttering very few notes, few, if any, indicative of alarm.

From the latter part of May until the middle of July the birds I observed were exceedingly shy and very quiet. June 30 I secured the first young bird from the nest. By July 20 family parties were very common and made noisy crowds. To approach one of these parties, was to be at once taken for an evil character. The parent birds would immediately grow excited trying to hurry their charges along. The family parties were common until about August 20, when they were more frequently seen in pairs or singly until all had departed.

The present year I have seen, compared with last year, very few birds. Also the breeding commenced very much later and I did not take a specimen showing signs of breeding by the swollen condition of the ovaries until May 8. Not only with *V. flavo-viridis* have I noticed the late date of breeding, but with all the birds breeding in the vicinity of San José. This is probably owing to the commencement of the rainy season being a month later than last year, that is the middle of May this year, whereas last year it had begun by the middle of April. Before the beginning of the wet season vegetation is parched and dry, and insects of all kinds are much less abundant.

NORTH AMERICAN BIRDS FOUND AT SAN JOSÉ, COSTA RICA, WITH NOTES ON THEIR MIGRATION.

BY GEORGE K. CHERRIE.

According to Zeledon's list of the birds of Costa Rica, published in Vol. I, *Annales del Museo Nacional de Costa Rica*, there are found here 190 of the birds recognized by the A. O. U. as North American. Of this number 81 are found at San José, as represented in my own collection or that of the Museo Nacional. While the time I have been in Costa Rica is short, I yet feel that

the notes I present may be of some value as they represent the observations made in the field on an average of four mornings each week.

On the night of Sept. 28, 1889, great numbers of birds were killed by flying against the electric light wires. The night was very dark, and the birds, which were evidently migrating, became bewildered by the electric lights. Their frightened cries were heard all night, and in the morning many dead birds were picked up in the streets. The occurrence was so novel and marked as to attract general attention. I made thirty-five skins from birds found dead in the streets, but generally they were too much mutilated to be available for specimens. I noticed among them eight species, seven of them being migrants.

1. *Anas discors*.—Oct. 27, 1889, I saw a Blue-winged Teal on the river just south of the city. It is the only Duck I have seen in the vicinity of San José.

2. *Ardea herodias*.—About the first of December one was shot just east of the city and brought to the museum.

3. *Ardea egretta*.—During December and January several were shot.

4. *Ardea cœrulea*.—During December several were brought to the museum.

5. *Ardea virescens*.—They are resident and breed, but are only rarely seen.

6. *Nycticorax violaceus*.—From Aug. 25, 1889, until Oct. 15, I occasionally saw them. All seen were young birds.

7. *Porzana carolina*.—The museum possesses a single specimen labelled, "San José, 1881, J. C. Zeledon."

8. *Gallinago delicata*.—First noted Oct. 9, 1889; for a time they were not uncommon, but then seemed to disappear, and none were noted again until Feb. 1, 1890. I saw the last Feb. 16.

9. *Tringa maculata*.—This species appeared and disappeared with the Bartramian Sandpiper.

10. *Totanus solitarius*.—I took a female April 27, 1889. In the fall I saw the first Sept. 16. They were common from that time until Dec. 1, 1889. I have not noted any since.

11. *Bartramia longicauda*.—From Sept. 25, 1889, until Nov. 15, they were common.

12. *Tryngites subruficollis*.—They appeared and disappeared with *Bartramia longicauda* and *Tringa maculata*. Their early disappearance was probably due to the dry season commencing and consequently destroying their feeding grounds.

13. *Actitis macularia*.—I saw the first in the fall Oct. 4, 1889. They were common until Feb. 16, 1890, when I saw the last.

14. *Charadrius dominicus*.—Sr. Don Manuel Caranza brought one to the museum Dec. 2, 1889. Dec. 3 I saw three others. Not noted again.

15. *Ægialitis vocifera*.—From Nov. 20, 1889, they were abundant until March 12, 1890.
16. *Zenaidura macroura*.—During December and January three or four were taken.
17. *Columbigallina passerina*.—Very common resident. Breeds.
18. *Cathartes aura*.—Occasionally seen.
19. *Catharista atrata*.—Exceedingly abundant and ever present.
20. *Circus hudsonius*.—One was taken Oct. 1, 1889, after that they were frequently seen until Feb. 2, 1890.
21. *Parabuteo unicinctus harrisi*.—I have not seen any, but there is one in the museum collection labelled San José.
22. *Buteo swainsoni*.—One was taken Nov. 25, 1889.
23. *Buteo latissimus*.—Noted during December and January, and one seen April 20, 1890.
24. *Falco sparverius*.—Were common from Oct. 27, 1889, until Feb. 16, 1890.
25. *Polyborus cheriway*.—Are not common about San José, but are resident and breed near the city.
26. *Glaucidium phalænoides*.—A tolerably common resident.
27. *Crotophaga sulcirostris*.—Abundant resident.
28. *Coccyzus americanus*.—Have taken one.
29. *Coccyzus erythrophthalmus*.—I am assured by Señor Zeledon that it is taken in San José.
30. *Ceryle cabanisi*.—Common resident. Breeds.
31. *Chordeiles texensis*.—Two specimens in the museum collection, male and female, both labelled, "San José, Nov. 6, 1888, A. Alfaro."
32. *Cypseloides niger*.—There is a single specimen in the museum collection labelled, "San José."
33. *Trochilus colubris*.—I have not noted any, and there are none in the museum collection, but I am assured by Sr. Don José C. Zeledon that they are found here.
34. *Amazilia fuscicaudata*.—Common resident. Breeding, I believe, every month in the year.
35. *Milvulus tyrannus*.—I noted the first at San José, June 7, 1889, a male in worn plumage. The second was noted June 14, when they were common in the large open fields. They remained common until the middle of July, then were absent until Sept. 18, when I saw quite a number. By the first of November they had again disappeared, and they have not yet (June 19) appeared this year. They breed quite commonly at a little lower altitude.
36. *Pitangus derbianus*.—Have taken it once or twice.
37. *Myiozetetes texensis*.—In the spring of 1889 they were not uncommon in the vicinity of the city, and one nest and set of eggs were taken. But they were rarely seen from June 20 until Oct. 13, 1889, when I recorded them as "quite common by the river." None were noted again until Feb. 9, 1890, then some were seen in company with several *Megarrhynchus pitangua*. None have been noted since that time, and I do not believe any have bred here this year.

38. *Myiarchus crinitus*.—I have only one record, that of a male taken Nov. 24, 1889.

39. *Contopus borealis*.—I have notes for only five dates, and but a single individual was seen each time. The first was Oct. 4; second, Oct. 17; third and last in 1889, Oct. 27. None were seen until April 27, 1890, when I took a fine female; it was very fat. A male was taken May 7.

40. *Contopus virens*.—In the spring of 1889 the last one, a female, was seen April 11. The first to return was a male on August 21. This year I took the last April 29. They are never common.

41. *Contopus richardsonii*.—I find such difficulty in separating *C. virens* and *C. richardsonii* that it is only typical examples that I can refer to either with any certainty that I am correct. I took the first typical *richardsonii* Oct. 27, 1889. From that time until the middle of November they were much more frequently met with than *C. virens*. None were noted after Dec. 1.

42. *Empidonax flaviventris*.—Have taken only one, a male, Oct. 27, 1889.

43. *Empidonax acadicus*.—Took two in the fall of 1889, one Sept. 17, the other Oct. 4. In the spring of 1890, in the early part of May, they were very common, frequenting the fringe of woods along the river bank. May 11, I took six and saw others. All were very fat.

44. *Callothrux robustus*.—Common and permanent resident at San José. Seems to have a preference for the nest of *Buarremon gutturalis*.

45. *Sturnella magna mexicana*.—A common bird, breeding in the vicinity. During the worst of the rainy season in 1889, from the last of July until the middle of November, they disappeared, but were found in other localities. Several were noted Nov. 24, but they were not again common until the first of March, 1890.

46. *Icterus spurius*.—I have no spring notes for 1889. I took the first fall migrant, a female, July 31. The second noted was a male Aug. 13. By August 25 they were tolerably common, but they disappeared immediately after that, being rarely seen. The last were seen March 2, 1890.

47. *Icterus galbula*.—Quite rare. The first seen in the fall of 1889 was on Oct. 27; the last in the spring, March 2, 1890.

48. *Habia ludoviciana*.—Oct. 23, 1889, I noted the first arrival, a young male. They were then seen occasionally until Feb. 3, 1890, when I took the last, a female.

49. *Passerina cyanea*.—There are two skins in the museum collection labelled respectively "San José, Nov. 5, 1887," and "San José, Nov. 17, 1887. A. Alfaro." I have not noted the bird myself.

50. *Spiza americana*.—My only record is for Sept. 29, 1889, many having perished the night before. Almost all were young birds, with a slight preponderance of males. Mr. J. C. Zeledon reported them a month before from Pozo Azul.

51. *Euphonia elegantissima*.—There are two specimens in the museum collection, both males, one without date, the other labelled "Dec. 20, 1884, Anastasio Alfaro."

52. *Piranga rubra*.—Not an uncommon bird for a little time after they first arrive in the fall. My first note is for Oct. 26, 1889, when I saw several. I saw none in the spring, but there is a female in the museum collection labelled "San José, Jan 10, 1885. A. Alfaro."

53. *Chelidon erythrogaster*.—First noted Sept. 8, 1889, when they were quite abundant. They were common until early in February.

54. *Stelgidopteryx serripennis*.—Very common throughout the rainy season, but seldom seen in the dry season, from early in December until the latter part of April.

55. *Vireo olivaceus*.—But seldom seen. I took a female Oct. 9, 1889. Noted the last this spring April 20.

56. *Vireo flavoviridis*.—Breeds abundantly, disappearing from San José only during the dry season. In the fall of 1889 the last were seen Sept. 29, several having been killed the night before. They return about the middle of April. For fuller notes on *V. flavoviridis* see the present number of 'The Auk' pp. 329-331.

57. *Vireo philadelphicus*.—I have only once noted the Philadelphia Vireo. April 23, 1889, I took a female.

58. *Vireo flavifrons*.—Seldom met with here. The first arrival in 1889 was a female Oct. 25. Feb. 9, 1890, I saw two; they were the last.

59. *Mniotilta varia*.—Arriving in San José the middle of February, 1889, I made no notes on the Black-and-white Creeper that spring, and the first noted in the fall was Aug. 20, when I saw one industriously searching the branches for food. The next were noted Aug. 23, when two females were taken, both birds of the year. They are never at any time even tolerably common, and from Sept. 15, they are exceedingly rare. One was noted Nov. 10, and the last seen, a fine male, was on Feb. 28, 1890.

60. *Protonotaria citrea*.—The first were noted Oct. 13, 1889, on which date they were not uncommon. They were seen again Oct. 21. A skin in the museum collection is labelled "San José, Oct. 29, 1887." None were seen in the spring.

61. *Helmitherus vermivorus*.—I find a single skin in the Museo Nacional, labelled "San José."

62. *Helminthophila chrysoptera*.—Took a fine female Sept. 15, 1889. They were quite abundant on that date. This is the only note I have made regarding this species.

63. *Helminthophila peregrina*.—I have no notes for the spring of 1889. In the fall the first were noted Sept. 17; several were seen. None were met again until Oct. 14, when I took a female. From that time on they were common until Oct. 27, when they were very abundant, the most so of all the Warblers. Then they seemed to decrease in numbers until Dec. 5, when I again found them abundant. Through January and February they were tolerably common. The last were seen March 6.

64. *Dendroica aestiva*.—This is one of the most common of the Warblers. The last was seen in the spring of 1889 on May 9. The present year I saw the last May 11. They made their first appearance in the

fall of 1889 Aug. 25, on which date a number were seen. Those taken were very fat. From this date they were common, and by Sept. 17 abundant, then the numbers seem to have diminished, until during October, November, December and January they were only tolerably common. During the latter part of January and the first of February they were the most common Warbler in the vicinity of San José. From this time they were common until the first of May. None of those taken last showed any signs of breeding.

65. *Dendroica coronata*.—They were not noted in the fall, and only twice in the spring: a female in good plumage was taken Jan. 19, and a male and a female were seen Feb. 15.

66. *Dendroica pensylvanica*.—In the spring of 1889 the last individual seen was a male, April 24. The first arrival noted in the fall was one of the unfortunates of the night of Sept. 28, also a male. By Oct. 13 they were abundant, but this was their last appearance. There is one skin in the museum collection labelled "San José, Nov. 1887." None were noted in the spring of 1890.

67. *Dendroica blackburniæ*.—The first Blackburnian Warbler was noted Sept. 8. They were not seen again until the 24th, and then again not until the 29th, when a specimen was picked up in the street, a victim of the panic of the night before. They were common from that time until Oct. 13, when I recorded them as abundant, but within three or four days all had disappeared and none were met with again until their last appearance Feb. 9, 1890, when several were seen.

68. *Dendroica virens*.—The museum possesses a single skin labelled, "San José, Nov., 1887. Alfaro."

69. *Seiurus aurocapillus*.—I have only once noted the Ovenbird at San José, on Oct 27, 1889.

70. *Seiurus noveboracensis*.—Last year (1889) I had frequent notes until May 21, when I took a female, the last seen. This spring my last note is April 20. In the fall of 1889, I saw the first Sept. 14. A number were victims in the disaster of the night of Sept. 28. They are never common.

71. *Seiurus motacilla*.—I have one in my collection, taken in San José, March 9, 1890.

72. *Geothlypis formosa*.—There is a skin in the museum, without date.

73. *Geothlypis philadelphia*.—Rare in this vicinity. The last seen in the spring of 1889 was on April 24; the last in 1890, April 27. The first to return last year was noted Sept. 1. Quite a number perished on the night of Sept. 28, 1889; with one exception they were all females.

74. *Geothlypis macgillivrayi*.—A very good example of Macgillivray's Warbler was one of the victims of Sept. 28.

75. *Geothlypis trichas*.—Very rarely seen at San José. This year I took a female in good plumage April 29. The last seen in 1889 was a female, March 29. I have no records for the fall and there are no fall specimens in the museum collection.

76. *Icteria virens*.—In the fall of 1889 the first appeared Oct. 26. For two weeks they were not uncommon and then disappeared entirely, not being seen again until March 1, 1890. They were tolerably common until the 5th, when I took the last, a female. For the spring of 1889 I have only one note, that of a female taken Feb. 15.

77. *Sylvania pusilla pileolata*.—First seen Oct. 27 (1889), by Nov. 20 they are quite common, and throughout December are the most abundant Warbler. Saw the last March 6.

78. *Sylvania canadensis*.—The first I saw at San José was a female picked up in the street on the morning of Sept. 29, 1889. They were not uncommon from that date until Oct. 6 when I found them abundant along the river banks. None appeared in the spring.

79. *Setophaga ruticilla*.—I have no notes for the spring of 1889. The first for the fall is that of a female Aug. 13; the second, also a female, was seen on the 20th; the first male was noted on the 23d; on the 27th I saw the second and last male noted, although the females were tolerably common until March 6 when the last was seen.

80. *Turdus fuscescens*.—I have seen only a single example, brought in the flesh to the museum Oct. 14, 1889, by Señor Manuel Caranza.

81. *Turdus ustulatus swainsonii*.—There is one specimen in the museum collection, labelled "San José, Nov. 7, 1887. A. Alfaro."

NOTES ON HABITS OF A FEW BIRDS OF ORANGE COUNTY, FLORIDA.

BY D. MORTIMER.

Ardea herodias. GREAT BLUE HERON.

THE Great Blue Heron is commonly rather wary, but I have noticed one or two singular exceptions to this rule. On June 23, 1888, my brother and I were fishing in a small creek that drains from the great prairie on the west shore of Lake Jessup. We had shifted our position to a certain point when we noticed that some creature was splashing about just around the nearest bend. Watching for a moment, we soon saw a Great Blue Heron busily engaged in catching a lunch. It was wading in water that reached above the joints of its legs, and its mode of proceeding was to lift one foot after the other slowly and deliberately clear of the surface, thus moving steadily and silently. Frequently it struck

to the right or left, first pausing and apparently taking careful aim. Occasionally it wished to reach some object at a distance out in the stream, when it plunged bodily forward and stretched its neck to the utmost, though it could no longer touch bottom with its feet. At these times it always spread its wings, and with their aid floundered backward to its former position in shallow water. The manœuvre was decidedly awkward, though apparently always successful, as the bird could be observed swallowing what it had secured. We watched it for some time as it waded up and down the shore, and were surprised that it was not disturbed by our presence and conversation. Finally, to test its unconcern, my brother sculled the boat past it, keeping to the opposite shore, which, however, was less than twenty yards distant from the bird. After he had passed the Heron, we talked back and forth past it, but the only notice it took of us was to stand motionless once or twice and look at us. It displayed the greatest proof of confidence as my brother was returning, for, as he was about opposite to its station, it made one of its comical plunges into deep water. We finally left it still pursuing its nourishment.

Himantopus mexicanus. BLACK-NECKED STILT.

It is interesting to note the ability of this extraordinary Wader to swim when pressed by necessity, though it probably never exercises itself in this way under ordinary circumstances. While on the St. John's River in April, 1888, in company with my brother, we wounded a Black-necked Stilt that was yet able to use its legs and ran some distance along the shore; but being pressed by our pursuit, it took to the river and swam for the opposite bank. One returned to the place where we had stepped ashore, to get the boat, while the other remained to watch the bird and direct the continuation of the pursuit. Before the boat could be brought up to the scene of action, the Stilt had crossed the river, but there it lost strength and lay helpless under the bank. In swimming, the Stilt had proceeded in a sort of sidling manner, and rising in the water with each stroke of the feet, and continually turning its head from side to side, it presented a foolish aspect, but its progress was remarkable when its ill adaptation to swimming is considered.

Buteo lineatus alleni. FLORIDA RED-SHOULDERED HAWK.

This is the most troublesome of the Hawks among young chickens in Orange County. The numerous bay tree swamps are its favorite residence, as they serve as a safe stronghold, and also harbor myriads of cotton rats which are a favorite prey with it. It would appear that this Hawk is not in the habit of molesting the common small birds, as I have observed numbers of Blackbirds fly into the same tree with one, neither party paying any attention to the other. The bold little Sparrow Hawk has no difficulty in driving this larger species, and I have seen a pair of Quail rout a Red-shoulder that had made a sally upon their brood.

Ceophlæus pileatus. PILEATED WOODPECKER.

The Pileated Woodpecker is among the birds most limited in the variety of their notes, and indeed its only cry seems to be the wild clatter that has been so often described. On one occasion I discovered a pair of birds of this species apparently at play amongst the trees of a dense hummock. Wishing to secure them, I shot the female as she clung to a broken limb on a large oak. The male, who had been making a great noise, was silent a minute upon the report of the gun, but directly began again, and at the same time flew about rapidly as if trying to discover his mate. Presently he alighted on the very limb from which the other had fallen, and then I fired at him in the midst of one of his outbursts. Although he fell, he did not pause in his clatter for an instant, but came tumbling down until he caught in some moss at a distance from the ground, where he continued to vociferate without apparently allowing himself to draw a breath. Very soon he fell to the earth, but became quiet only when I pressed my hand upon his lungs. It would seem that this bird must have felt pleasure, fear, and pain during the time I observed him, all of which he expressed by the same sounds.

Melanerpes carolinus. RED-BELLIED WOODPECKER.

Possessing very full testimony regarding this bird's habit of eating oranges, as noticed with interest by Dr. Warren and Mr. Brewster, I offer my observations made near Sanford. During

February and March, 1889, while gathering fruit or pruning orange trees, I frequently found oranges that had been riddled by this Woodpecker, and repeatedly saw the bird at work. I never observed it feeding upon fallen oranges. It helped itself freely to sound fruit that still hung on the trees, and in some instances I have found ten or twelve oranges on one tree that had been tapped by it. Where an orange accidentally rested on a branch in such a way as to make the flower end accessible from above or from a horizontal direction the Woodpecker chose that spot, as through it he could reach into all the sections of the fruit, and when this was the case there was but one hole in the orange. But usually there were many holes around it. It appeared that after having once commenced on an orange, the Woodpecker returned to the same one repeatedly until he had completely consumed the pulp, and then he usually attacked another very near to it. Thus I have found certain clusters in which every orange had been bored, while all the others on the tree were untouched. An old orange grower told me that the 'sapsuckers,' as he called them, never touch any but very ripe oranges and are troublesome only to such growers as reserved their crops for the late market. He also said that it is only within a very few years that they have shown a taste for the fruit; and I myself observed that, although Red-bellies were very common in the neighborhood, only an individual, or perhaps a pair, visited any one grove. In one case a pair took up their station in a dead pine near a grove and made excursions after the fruit at all hours of the day, being easily located by the noise they kept up.

Tyrannus tyrannus. KINGBIRD.

Flocks of Kingbirds wintering in Orange County are very fond of frequenting the lakes that abound there. About Lake Ada, a large, clear-water pond, it is common to find Kingbirds in great numbers, reaching even into the hundreds. They always seem in high spirits and full of play. Continually uttering their note, they pursue one another, and frequently dip in the water like Swallows. Whenever an opportunity offers they indulge in their favorite trick of abusing any Crow that comes along.

Corvus americanus floridanus. FLORIDA CROW.

This variety of the American Crow seems to be more familiar with man and sociable among its feathered neighbors than its Northern relative. It is common to see it feeding about the streets and vacant lots of Sanford, especially when the palmetto fruit is ripe enough to eat. It associates freely with the Boat-tailed and Florida Grackles, and also with the Red-winged Blackbird and the Rice-bird, and I have seen flocks including all these species enjoying themselves about the town. It always retreats before any small bird that undertakes to chase it, though it does so apparently because it is too indolent to drive off its assailant, and not on account of timidity. Omnivorous in the fullest sense, it is always on the lookout for any edible morsel. I have seen Florida Crows attach themselves to the Osprey as soon as the latter captured a fish, and tag it about as if to secure any scraps that might fall during the meal. The Osprey is disturbed by this intrusion and tries to strike the Crows with its wings if they come too close.

For several weeks I kept in confinement a Florida Crow that had been injured by a shot. It became quite tame almost at the first and ate every kind of food. It was particularly fond of the larvæ and spiders contained in the nests of the mud wasp and would peck the cells open in order to obtain them. It was very fond of bathing in a pan of water. When it recovered from its injuries I set it at liberty, but was surprised to see that it stayed about for a few days. It entered the house and explored every room up stairs and down, and finding a pail of refuse scraps in the kitchen, returned to feed from it several times after we supposed it had left for good.

The Florida Crow has a peculiar note that I never heard uttered by any Crow at the North. It is a loud, rattling sound something like the cry of the Cuckoo, and puzzled me much as to its source until I detected the bird in the act of producing it.

Quiscalus major. BOAT-TAILED GRACKLE.

Boat-tailed Grackles are great insect eaters. Besides being fond of palmetto fruit and other vegetable substances, they frequent the beds of 'bonnets' or lily pads for the worms, etc., that are to be found there, and I have also observed them pursuing and capturing moths and other winged insects.

***Passer domesticus.* HOUSE SPARROW.**

On account of the extreme rarity of this interesting bird in Orange County, I mention the single instance of its occurrence that came under my notice during a residence of two years and four months. Throughout the latter half of March, 1887, a female House Sparrow frequented the stable on our premises, a mile north of the town of Sanford.

***Lanius ludovicianus.* LOGGERHEAD SHRIKE.**

In March, 1889, two instances of the Loggerhead Shrike killing small birds came under my notice. In both cases the victim was a Grasshopper Sparrow, although birds of this species were few and scattered at that time, while the Savanna Sparrow was very abundant. The Sparrows were impaled by the neck upon orange thorns, and there were no wounds on any other part of the body. The 'Florida Dispatch' cites an instance of the Loggerhead killing a little chicken. This bird impales its prey not only when it wishes to preserve it, but also when it intends to devour it immediately, and the long slivers on fresh pine stumps are commonly selected for the purpose wherever they can be found. The bird flies to a stump with its victim, usually a large beetle, and forces it upon a sliver, just behind the thorax; thus having a convenient place to stand, and a convenient fork to hold the morsel, while he breaks open the hard shell and eats the softer parts. The same stump is resorted to many times by the same bird, so that it is common to find quantities of the legs and wing-cases of beetles about these curious dining tables.

***Dendroica coronata.* YELLOW-RUMPED WARBLER.**

I have seen Yellow-rumped Warblers eating oranges as mentioned by Mr. Brewster in 'The Auk' (July, 1889). When observed in the act they were feeding on fallen fruit that had been broken open, but, as they also frequented the trees, possibly they extracted pulp through holes made by the Red-bellied Woodpecker. From January 12 to February 8, 1888, this species was extremely abundant all over the region about Sanford. Hummock, bay, pine land, and flat woods swarmed with them, and they also frequented the town, and even entered houses.

Mimus polyglottos. MOCKINGBIRD.

The power of song in this bird is a subject that never ceases to be interesting. My observations on the subject lead me to conclude that the great majority are not very gifted singers, and that the wonderful variety of notes so often described is possessed by a small percentage only.

Surrounded by orange groves, which are a favorite haunt of the Mocker, our home was amongst dozens of Mockingbirds, but only two seemed to be great singers. Later we moved to a new place, two miles further from Sanford, and there there was but one great singer among the Mockingbirds of that neighborhood. The cries of the Sparrow Hawk and the Loggerhead Shrike seem to be possessed by all, but whenever I heard one utter any other note it seemed striking. A Mockingbird that frequented our place imitated the Blue Jay, Bob-white, Sparrow Hawk, Red-shouldered Hawk, Cardinal and Bluebird, besides having its own individual song. The same bird imitated a chicken in distress so perfectly that I several times believed a Hawk had visited the hen-yard.

**DESCRIPTION OF A NEW SPECIES OF *ICTERUS*
FROM ANDROS ISLAND, BAHAMAS.**

BY J. A. ALLEN.

THROUGH the kindness of Mr. John I. Northrop, of the School of Mines, Columbia College, New York, I have the pleasure of making known a new species of *Icterus* from Andros Island, one of the larger islands of the Bahaman group. During four months spent recently on Andros Island, Mr. and Mrs. Northrop devoted much attention to birds, collecting about seventy species, among them several new to the Bahamas, as well as the novelty about to be described, which adds not only a new genus to the Bahaman fauna, but a new species to science. The species is represented by nine specimens, three of which are adult males,

one immature male, one adult female, three immature females, and another immature specimen of which the sex could not be determined. As shown by Mr. Northrop's notes given below, he found the species not uncommon. It is known to the residents of the island as the 'Cocoanut Bird,' and is said to be resident throughout the year.

Icterus northropi, sp. nov.

Adult Male.—Whole anterior half of the body, as far as the middle of the breast below, and including the interscapulum above, together with the wings (except the lesser and median coverts), and tail, deep black; rest of the body, the thighs, lesser and median wing-coverts, edge of the wing, lower wing-coverts and axillars, rich lemon-yellow; greater wing-coverts and primaries very narrowly edged, and the outer tail-feathers very narrowly tipped with white. Bill and feet black; lower mandible with the basal third bluish. In one specimen the longest two lower tail-coverts are mixed yellow and black; in the other specimens they are all wholly yellow.

Adult female.—Similar to the male, except slightly smaller, and with the black a little less lustrous.

Young.—Immature birds of probably the second year are olivaceous gray above, brighter and more yellowish on the front of the head; lesser wing-coverts, lower back, rump, upper tail-coverts, and whole lower surface greenish yellow, brightest on the rump and middle of the abdomen; median wing-coverts pale sulphur yellow; greater coverts brown, edged with whitish; chin, throat, and cheeks much mixed with black, which here prevails over the yellow; there are scattered black feathers over the breast and head, and in one specimen blackish patches on the outer edge of the scapulars and sides of the breast; wings and tail brown, the remiges edged with whitish, and the rectrices with olive.

Other specimens in a less advanced stage are similar, except that there are fewer black feathers intermixed with the yellow, the chin and the front edge of the cheeks alone being decidedly blackish, and the back is less olivaceous.

Measurements.—Length (from skins), 205 mm. (195–215 mm.); wing, 94 mm. (90–99 mm.); tail, 94 mm. (90–97 mm.); culmen, 22 mm. (21–22 mm.); tarsus, 25 mm. (24–27 mm.).

Types. No. 49,911, Am. Mus. Nat. Hist., ♂ ad., Andros Island, Bahamas, June, 1890; Mr. and Mrs. John I. Northrup. No. 49,912, Am. Mus. Nat. Hist., ♀ ad., Andros Island, Bahamas, April 16, 1890.

The extent and distribution of the black and yellow in the adults are the same as in *P. wagleri* except that the tail-coverts are yellow instead of black; the tint of the yellow is nearly as in

I. dominicensis, from which it differs in having the whole lower parts yellow from the middle of the breast posteriorly, instead of the yellow being confined to the sides of the abdomen and crissum. The two species agree in general size, but in *I. northropi* the bill is much stouter than in *I. dominicensis*.

It is surprising that a bird so conspicuous, and apparently so common, as this should hitherto have escaped observation, Andros Island having been several times previously visited by ornithologists.

Mr. Northrop has kindly presented the types of this species to the American Museum of Natural History, and contributes the following notes on its habits and distribution.

"The above species of *Icterus* was first collected by us at Nicol's Town, near the northern end of Andros, on April 8, 1890. We had been there nearly a month when one morning a new note called us out of the house, and we saw three or four of these birds flying about the shrubs near by. They were so tame and unsuspicious, that when one was shot, the others kept their positions undisturbed until they met a similar fate. Of the three we got then, one was a male, one a female, and one we could not determine, but they were all in immature plumage. Two weeks or so later, while on a trip to the west side, we saw a number of these birds near Red Bays, and this time were fortunate enough to get a male and female in full plumage. They were flying about the palmettoes, or the flower stalk of an Agave which was a mass of golden blossoms and a great attraction to all the birds in the neighborhood, as the flowers contained a large amount of nectar. While here one day, we heard a great commotion near by, and approaching the scene found two of these young birds fighting so violently that we almost got near enough to take them up in our hands. The only sound we heard them utter here was a rather plaintive call of two notes; but a month later, on May 22, we heard their song. It was a sort of whistle of eight or nine notes, very sweet and pleasing, and almost always given with the same intervals, and the same arrangement of notes. The bird was observed in two other localities, the last time, June 18, near Wide Opening on the west side. It seems to inhabit the more open portions of the island, near the coast, as we never saw any inland.

"The natives say that it builds its nest in the cocoanut trees, and is always about them, hence its local name of 'Cocoanut Bird.' They also told us that it remained throughout the year; that the eggs were pure white; and that the young birds differed from the old in plumage. From the condition of the organs of generation, it seems that the bird breeds during the month of June.

"The stomachs of those examined contained the remains of a grasshopper, beetles, and seeds; hence it may be inferred that its food consists of fruits and insects."

A LIST OF BIRDS FROM NORTHEAST BORNEO, WITH FIELD NOTES BY MR. C. F. ADAMS.

BY D. G. ELLIOT.

THE greater portion of the species enumerated in this paper were obtained by Mr. Adams in the vicinity of Sandakan. The extent and character of the region explored in making this collection is very fully described by Mr. Adams in the following paragraphs, which, with the field notes relating to the species, he has kindly furnished. Mr. Adams sent his collection of birds to the American Museum of Natural History for identification, and specimens of all the species given below (except three, Nos. 43, 58 and 83, included on Mr. Adams's own authority) have passed through my hands. The types of *Copsychus adamsi* (sp. nov.), and a set of duplicates from the collection, have been kindly presented by Mr. Adams to the American Museum.

[The following notes refer to birds collected in a narrow east and west tract lying in that particular part of British North Borneo between 5° 30' and 5° 40' N. Lat., and crossed by the meridian of 118° E., during the time from May, 1887, until Feb., 1888, while making a specialty of collecting the mammals of that region. The list includes a fair representation of what one may expect to find in that locality, although in a number of cases but one specimen of a species was observed. As is usual with the coast region of Borneo, this region is for the most part low, with occasionally

a hill or knoll to break the monotony of swamp and tide-affected rivers. The latter are numerous, and the most of them short, being brackish near or quite to their sources at high tide. Sandakan Harbor receives about a dozen of these short streams, which flow from the low lands lying to the south and west. The north side of the harbor is bounded by bluffs, or rather a range of hills, which run parallel with that side. At a point about ten miles southeast of the mouth of Sandakan Harbor the Kinabatangan, which is one of the largest rivers of the country, flows into the sea. Near its mouth, as is also the case with the other rivers, a growth of mangrove borders its channel, which at high tide it over-flows for an indefinite distance. Next in ascending order come the Nipa palms which extend for a few miles, being succeeded, as the country becomes a little higher, by the tropical forest made up of a variety of trees, many of which bear fruit.

In consequence of the seasons not being well marked, fruits are ripening in every month of the year.

The view one gets from a boat in ascending the Kinabatangan River gives an impression that the forest stands on high ground, and extends back indefinitely, but usually it is found that at a distance of a few hundred yards it gives place to boggy swamps containing scattering, stunted trees, vines, and various kinds of thorny growths. This is especially the case with the lower portion of the river.

The birds in this collection were taken among the range of hills just back of Sandakan Harbor, on Bahala Island, at the mouth of the harbor, and up the Kinabatangan, Suanlamba, and Sapagaya Rivers.

In these regions bird life may be said to be abundant, except in the mangrove districts where it might be expected that Herons or other water birds would have been found breeding, but not a single rookery was observed, an occasional Heron, Darter, or Kingfisher being the only birds noticed.

Early in the day mammals and birds are very active, but from eleven until three in the afternoon the heat induces them to retire to some dense shade where the hottest part of the day is passed.

As another consequence of the seasons not being well marked, the moulting of birds is very irregular, and of one species of Hornbill (*Buceros galeatus*) not a single specimen was taken during the seven or eight months of collecting that was in good plumage.—C. F. A.]

ORDER PASSERES.

FAMILY TURDIDÆ.

1. *Geocichla interpres*.

Turdus interpres TEMM. Plan. Color. pl. 458. — LESS. Trait. Ornith. p. 410 (1831).

Geocichla interpres SHARPE, Cat. B. V, p. 166.

Suanlamba River. A single specimen differs somewhat from *G. interpres*, by not having any ochraceous on the flanks.

[Found in damp situations. Shy. — C. F. A.]

2. *Copsychus adamsi*, sp. nov.

Adult Male: — Entire plumage glossy purplish black, shading to a slaty gray on lower part of abdomen. A large, white patch on wing including least, median and greater coverts, with a black inner web to the innermost greater coverts. The edge of outer web on the sixth secondary of the right wing is white for two thirds its length from the base. This does not exist on the left wing and is possibly abnormal. Tail, feet, and bill black. "Iris dark brown." Total length (skin), 8½ in. Wing 4½. Bill, ½. Tail, 4. Tarsus 1½ in.

Female. — Above glossy black, like the male, but with the outer web of the sixth secondary broadly edged with white. Below ashy gray, the throat and breast with a strong bluish cast. Otherwise like the male, except slightly smaller.

A nearly mature male differs from the male above described in having the lower abdomen and flanks ashy.

Types, No. 49,677, ♂, No. 49,678, ♀, Am. Mus. Nat. Hist., Sandakan, May 11 and 12, 1887; C. F. Adams.

This bird resembles closely *C. seychellarum* A. Newton (Ibis, 1865, p. 332, pl. 8.) from the Seychelles, but is smaller in all its measurements, those given of Newton's type being as follows: tot. length 10.5 in.; culmen 1; wing 4.9; tail 4.7; tarsus 1.55. It is rather singular to find so near a representative of a Seychelles species in Borneo.

[Rather common along clear brooks in shady situations. — C. F. A.]

3. *Cittocinclla stricklandi*.

Copsychus stricklandi MOTT. & DILL, Nat. Hist. Lab. p. 20, pl. iv [1855].

Kittocinclla stricklandi SALV. Ucc. Born. p. 253 (1874).

Cittocinclla stricklandi SHARPE, Cat. B. VII, p. 88 (1883); *id.* Ibis, 1889, p. 270.

[Sandakan. Iris dark brown. Found along clear brooks in company with the last species. Although probably seldom seeing man, it is exceedingly wild, uttering sharp, chirping notes and quickly flying away at the first appearance of an intruder. — C. F. A.]

FAMILY PYCNONOTIDÆ.

4. *Chloropsis zosterops*.

? *Chloropsis gampsorhynchus* JARD. & SELB. Ill. Ornith. pl. 7 (1826).
Chloropsis zosterops VIG. App. Mem. Life Raffl. p. 674. — SHARPE, Cat. B. VI, p. 24 (1880).

Phyllornis sonneratii (nec JARD. & SELB.) BLYTH, Journ. Asiat. Soc. Beng. XI, p. 109 (1842). — JERD. B. Ind. II, p. 100 (1863). — SALV. Ucc. Born. p. 193 (1874).

Phyllornis javensis (nec HORSEF.) GOULD, B. Asia, Pt. XII. — WALDEN, Ibis, 1871, p. 168.

Phyllornis viridis TWEED. Ibis, 1877, p. 305.

[Sandakan. Iris dark brown. Common among low bushes in cleared districts. — C. F. A.]

5. *Criniger phæocephalus*.

Ixos phæocephalus HARTL. Rev. Zool. 1844, p. 401.

Trichophorus caniceps LAFRES. Rev. Zool. 1845, p. 367.

Criniger phæocephalus SALV. Uccell. Born. p. 207 (1874). — SHARPE, Cat. B. VI, p. 74 (1881); *id.* Ibis, 1889, p. 274.

[Sapagaya River. Iris brown. — C. F. A.]

6. *Irena crinigera*.

Irena turcosa (nec WALD.) SHARPE, Ibis, 1876, p. 44.

Irena crinigera SHARPE, Ibis, 1879, p. 257; *id.* Cat. B. VI, p. 176 (1881); *id.* Ibis, 1889, p. 277.

[Sandakan. Iris reddish orange. Common. Found high up in the largest fruit trees, with the Hornbills, Pigeons, etc. — C. F. A.]

The specimens before me have the under tail coverts extending quite to the tips of the rectrices, and small blue spots on the innermost greater wing-coverts. I follow Sharpe in the name of this species, as, not having any specimen from Java to compare with, I am unable to determine the specific value of the Bornean birds.

FAMILY TIMELIIDÆ.

7. *Orthotomus cinerascens*.

Orthotomus sepium LAFRES. Mag. Zool. 1836, pl. 51 (*nec* HORSF.).

Orthotomus cinerascens BLYTH, Jour. As. Soc. Beng. XIV, p. 489 (1845).

—SALV. Ucc. Born. p. 248 (1874). —SHARPE, Cat. B. VII, p. 225, (1883); *id.* Ibis, 1889, p. 279.

Orthotomus borneonensis SHARPE, Ibis, 1876, p. 41, pl. 11, fig. 1.

[Suanlamba River. Iris light hazel. —C. F. A.]

8. *Stachyris nigricollis*.

Timalia nigricollis TEMM. Plan. Col. pl. 594, fig. 2.

Timelia nigricollis SALV. Ucc. Bor. p. 212 (1874).

Stachyris nigricollis SHARPE, Cat. B. VII, p. 535 (1883).

[Suanlamba River. Iris red. A fine songster. —C. F. A.]

9. *Turdinus atrigularis*.

Cacopitta atrigularis BON. Consp. Av. I, p. 257 (1850).

Turdinus atrigularis SALV. Ucc. Born. p. 217 (1874). —SHARPE, Cat. B. VII, p. 549 (1883).

[Sapagaya River. Iris hazel. Legs light brown. Bare skin behind eye blue. Frequents the ground much after the manner of the Pittas. —C. F. A.]

10. *Drymocapthus capistratoides*.

Myiothera capistratoides TEMM. Mus. Lugd.?

Goldana capistratoides STRICKL. Contr. Ornith. 1849, p. 128, pl. 36.

Drymocapthus capistratoides STRICKL. Contr. Ornith. 1857, p. 16.—

SALV. Ucc. Born. p. 218 (1874). —SHARPE, Cat. B. VII (1883);

id. Ibis, 1877, p. 11; 1879, p. 258; 1889, p. 415.

[Kinabatangan River. Iris brown. This little bird frequents the same situations as the Pittas, running along through dense brush, taking short flights only to re-alight on the ground. —C. F. A.]

I am somewhat in doubt whether to designate the single specimen obtained as *D. nigricapitata* or the present species, since the ear-coverts are much more ashy than black, and the mandible is decidedly yellow and not lead-color. Are the two forms really specifically distinct?

FAMILY ORIOLIDÆ.

11. *Oriolus xanthonotus*.

- Oriolus xanthonotus* HORSF. Trans. Linn. Soc. XIII, p. 153 (1821).—SALV. Ucc. Born. p. 277 (1874).—SHARPE, Cat. B. III, p. 213 (1874); *id.* Ibis, 1879, p. 251; 1889, p. 185.
[Sandakan. Iris red.—C. F. A.]

FAMILY CERTHIIDÆ.

12. *Dendrophila corallipes*.

- Dendrophila corallipes* SHARPE, Ibis, 1888, p. 479; 1889, p. 420.
[Sandakan. Iris yellow. Bill, eyelids and legs red. Runs over the tree trunks in the same manner as our Nuthatches.—C. F. A.]

FAMILY LANIIDÆ.

13. *Hyloterpe grisola*.

- Tephrodornis grisola* BLYTH, Jour. Asiat. Soc. Beng. XI, p. 799 (1842).
Hyloterpe grisola SALV. Ucc. Bor. p. 157 (1874).—SHARPE, Proc. Zool. Soc. 1879, p. 341.
Pachycephala grisola SHARPE, Cat. B. VIII, p. 220.
Hyloterpe grisola SHARPE, Ibis, 1889, p. 419.
Sandakan.

FAMILY DICRURIDÆ.

14. *Chaptia malayensis*.

- Chaptia malayensis* BLYTH, Jour. Asiat. Soc. Beng. XV, p. 294 (1846).
—SALV. Ucc. Born. p. 153 (1874).—SHARPE, Cat. B. III, p. 244 (1877).
[Sapagaya River. Iris brown. Shot among trees in an old clearing. Seems very restless.—C. F. A.]

15. *Dissemurus brachyphorus*.

- Edolius brachyphorus* BON. Consp. I, p. 351 (1850).
Dissemurus brachyphorus CAB. Mus. Hein. I, p. 112 (1850).—SALV. Ucc. Born. p. 154 (1874).—SHARPE, Ibis, 1876, p. 45; 1879, p. 251; 1889, p. 45.
Dissemurus paradiseus SHARPE, Cat. B. III, 258 (1877), in part.

[Kinabatangan River, December, 1887. Iris dark red. Found in wooded places near rivers. Seems to prefer spots where there is little undergrowth to interfere with short cross flights. It is rather restless, twisting from side to side on its perch, causing the spatulate ends of the long outer tail feathers to appear as objects hovering behind the bird, since the shaft between the broad tip and the basal part of the feather is so narrow as to be invisible at a short distance.—C. F. A.]

FAMILY PRIONOPIDÆ.

16. *Hemipus obscurus*.

Muscicapa obscura HORSF. Trans. Linn. Soc. XIII, p. 146 (1822).

Tephrodornis hirundinaceus SCL. Proc. Zool. Soc. 1863, p. 217.

Hemipus obscurus SHARPE. Cat. B. III, p. 305 (1877); *id.* Ibis, 1889, p. 189. Suanlamba River.

17. *Platylophus coronatus*.

Lanius coronatus RAFF. Trans. Linn. Soc. XIII, p. 306 (1822).

Lophocitta coronata CAB. Mus. Hein. I, p. 219.

Platylophus coronatus SALV. Ucc. Born. p. 280 (1874).—SHARPE, Cat. B. III, p. 318 (1877); *id.* Ibis, 1889, p. 190.

[Kinabatangan River. Iris brown; legs leaden blue. Apparently of an inquisitive disposition, hopping about overhead with its fine crest turned far forward, peering down on the intruder below.—C. F. A.]

FAMILY CAMPOPHAGIDÆ.

18. *Pericrocotus igneus*.

Pericrocotus igneus BLYTH, Jour. Asiat. Soc. Beng. XV, p. 309 (1846).

—SALV. Ucc. Born. p. 144 (1874).—SHARPE, Cat. B. IV, p. 78 (1879); *id.* Ibis, 1889, p. 192.

[Sandakan. Iris red. Common.—C. F. A.]

19. *Lalage culminata*.

Ceblepyris culminata HAY, Madr. Journ. XIII, p. 157.

Volucivora schierbrandii SALV. Ucc. Born. p. 148 (1874).

Lalage culminata SHARPE, Cat. B. IV, p. 104 (1879); *id.* Ibis, 1889, p. 194.

[Sandakan. Iris black.—C. F. A.]

FAMILY MUSCICAPIDÆ.

20. *Hypothymis occipitalis*.

Muscicapa occipitalis VIGORS, Proc. Zool. Soc. 1831, p. 97.

Hypothymis azurea SALV. Ucc. Born. p. 133 (1874).—SHARPE, Ibis, 1877, p. 18.

Hypothymis occipitalis SHARPE, Cat. B. IV, p. 275 (1879); *id.* Ibis, 1889, p. 197.

[Suanlamba River. Iris black.—C. F. A.]

21. *Rhipidura perlata*.

Rhipidura perlata MÜLL. Natuurl. Gesch. Land-en Volkenk. p. 185 (1839, 44).—SHARPE, Cat. B. IV, p. 328 (1889); *id.* Ibis, 1889, p. 199.

Leucocerca perlata SALV. Ucc. Born. p. 136 (1874).

[Sandakan. Iris brown. Very common. In movements resembles our Redstarts.—C. F. A.]

22. *Philentoma pyrrhopterum*.

Muscicapa pyrrhopterum TEMM. Plan. Col. 596, fig. 2.

Philentoma pyrrhopterum SHARPE, Cat. B. IV, p. 366 (1879); *id.* Ibis, 1889, p. 200.—SALV. Ucc. Born. p. 138 (1874).

[Sandakan. Iris brown. Very common.—C. F. A.]

23. *Stoparola thalassinoides*.

Glaucomyias thalassoides CAB. Mus. Hein. I, p. 53, note (1850).

Stoparola thalassinoides SALV. Ucc. Born. p. 132 (1874).—SHARPE, Cat. IV, p. 439 (1879); *id.* Ibis, 1889, p. 205.

[Suanlamba River. Iris dark brown.—C. F. A.]

24. *Siphia beccariana*.

Siphia beccariana SALV. Atti. R. Acad. Sc. Tor. III, p. 533 (1868)

—SHARPE, Cat. B. IV, p. 452 (1876).

[Suanlamba River. Iris brown.—C. F. A.]

25. *Terpsiphone affinis*.

Muscipeta paradisea EYTON, P. Z. S, 1830, p. 102 (*nec* LINN.)

Tchitrea affinis BLYTH, Journ. As. Soc. Beng. XV, p. 292.

Terpsiphone affinis SALV. UCC. BOR. p. 137 (1874). — SHARPE, Cat. B. IV, p. 349 (1879); *id.* Ibis, 1877, p. 19; 1889, p. 200.

[Sandakan, May 23, 1887. Iris dark brown; bill and eyelids deep purplish blue. Rather uncommon in the regions visited. While dashing about after insects it is very conspicuous (the male) on account of its light colors against the dark background of tropical foliage. As it describes graceful curves during its flight, the long feathers of the tail make it appear as an animated pennant.—C. F. A.]

FAMILY HIRUNDINIDÆ.

26. *Hirundo javanica*.

Hirundo javanica SPARR. Mus. Carl. pl. 100 (1789). — TEMM. Pl. Col. 83, fig. 2.—SALV. UCC. BORN. p. 126 (1874). — SHARPE, Cat. B. X, (1885); *id.* Ibis, 1889, p. 430.

Sandakan. Iris brown.

FAMILY DICAËIDÆ.

27. *Dicaeum trigonostigma*.

Certhia trigonostigma SCOP. Flor. et Faun. Insub. p. 91 (1786).

Dicaeum trigonostigma SALV. UCC. BORN. p. 166 (1874). — SHARPE, Cat. B. X, p. 38 (1885); *id.* Ibis, 1889, p. 429.

Suanlamba River. Iris brown.

FAMILY NECTARINIDÆ.

28. *Cinnyris jugularis*.

Certhia jugularis LINN. Syst. Nat. I, p. 185 (1766).

Cinnyris jugularis SHELLEY, Mon. Nec. I, pl. 93 (1876-1880).

[Sandakan. Iris brown. Common.—C. F. A.]

29. *Anthothreptes phænicotis*.

Nectarinia phænicotis TEMM. Pl. Col. 108, fig. 1, 388, fig. 2.

Anthreptes phænicotis SHELLEY, Mon. Nec. p. 325, pl. 105.

Anthothreptes phænicotis SHARPE, Ibis, 1889, p. 425.

Chalcoparia singalensis SALV. UCC. BORN. p. 180 (1874).

[Suanlamba River. Iris red. Rather common among bushes in old clearings.—C. F. A.]

30. *Arachnothera chrysogenys*.

Arachnothera chrysogenys TEMM. Pl. Col. 388, fig. 1.—SALV. Ucc. Born. p. 181 (1874).—SHELLEY, Mon. Nec. p. 365, pl. 117.—SHARPE, Ibis, 1889, p. 426.

[Sandakan. Iris dark brown.—C. F. A.]

31. *Arachnothera flavigaster*.

Anthreptes flavigaster EYTON, P. Z. S. 1839, p. 105.

Arachnothera flavigaster BLYTH, Journ. As. Soc. Beng. XIV, p. 557 (1845).

Arachnorhaphis flavigaster SHELLEY, Mon. Nect. p. 373, pl. 120.

Arachnothera flaviventris GADOW, Br. Mus. Cat. B. IX, p. 109 (1884).

[Suanlamba, Jan. 21, 1888. Iris brown.—C. F. A.]

FAMILY PLOCEIDÆ.

32. *Munia fuscans*.

Spermestes fuscans CASS. Proc. Acad. Sc. Phil. VI, p. 185 (1852); *id.*

Journ. Ac. N. Sc. Phil. III, p. 69, pl. 3, fig. 3, (1855).

Munia fuscans SALV. Ucc. Born. p. 268 (1879).—SHARPE, Proc. Zoöl.

Soc. 1879, p. 344; *id.* Ibis, 1889, p. 434.

[Sandakan. Iris dark brown. Frequents coarse grass in open situations.—C. F. A.]

FAMILY STURNIDÆ.

33. *Gracula javanensis*.

Corvus javanensis OSBECK, Iter. p. 102 (1757).

Gracula javanensis SALV. Ucc. Born. p. 274 (1874).—SHARPE, Ibis, 1889, p. 432.

[Sandakan. Iris brown. Legs and wattles chrome yellow, brightening to orange in middle of patch on side of head; basal part of beak reddish, graduating into yellow toward the tip. Rather common. Its note is a strong mellow whistle. Feeds on berries and small fruits. Near a camping place in an old clearing a pair used to come each evening just before dark and alight on the dead stub of a tree, where they kept up a whistling until it was rather dark and then crawled into a hollow to pass the night.—C. F. A.]

FAMILY CORVIDÆ.

34. *Platysmurus aterrimus*.

Glaucopis aterrimus TEM. Pl. Col. Liv. 57 (1825.)

Platysmurus aterrimus SALV. Ucc. Bor. p. 279 (1874). — SHARPE, Cat. B. III, p. 91 (1877); *id.* Ibis, 1889, p. 85.

[Suanlamba River. Iris red. Goes in small flocks. Its note very much resembles that of our common Crow. — C. F. A.]

FAMILY PITTIDÆ.

35. *Pitta cœrulea*.

Miyothera cœrulea RAFF. Trans. Linn. Soc. XIII, p. 301 (1822).

Brachyurus cœruleus ELLIOT, Mon. Pitt. pl. i (1863); *id.* Ibis, 1870, p. 412.

[Suanlamba River. Iris brown. But one specimen, a female, was seen. — C. F. A.]

36. *Pitta venusta*.

Pitta venusta TEMM. Pl. Col. 500. — SALV. Ucc. Born. p. 244, (1874).

Brachyurus venustus ELLIOT, Mon. Pitt. pl. xiv, (1863), *id.* Ibis, 1870, p. 416.

[Suanlamba River. Iris brown. Legs dusky blue. Generally observed on the ground but sometimes perched on the twig of a fallen branch or hopping lightly along a log. The flight, as of the other species, is usually quite short, consisting merely of passing near the ground from one slightly elevated position across pools of water to another. On dry ground they may disappear by hopping away through the dense brush. This beautiful species was sometimes found sitting on a log with point of beak elevated, softly whistling a very mellow and musical strain. — C. F. A.]

37. *Pitta baudi*.

Pitta baudi MÜLL. & SCHLEG. Verh. Nat. Gesch. Ned. Ind. pl. 2 (1839-44). — SALV. Ucc. Born. p. 243. (1874). — SHARPE, Ibis, 1889, p. 441.

Brachyurus baudi ELLIOT, Mon. Pitt. pl. xxii (1863); *id.* Ibis, 1870, p. 419.

[Sapagaya River. Iris brown. Legs and feet pale flesh color. Found in nearly the same situations as the preceding species, but seems to prefer drier and more open places. — C. F. A.]

38. *Pitta sordida*.

Turdus sordidus P. L. S. MÜLL. Natur. Anh. p. 143 (1776).

Pitta mülleri SALV. Ucc. Born. p. 240 (1874).—SHARPE, Ibis, 1889, p. 443.

Brachyurus mülleri ELLIOT, Mon. Pitt. pl. xxvi (1863).

Brachyurus atricapillus ELLIOT, Mon. Pitt. pl. xxv (1863).

Brachyurus sordidus ELLIOT, Ibis, 1870, p. 419.

[Kinabatangan River. Iris brown; legs flesh color with a faint wash of blue. Not common. Exceedingly shy, and difficult to shoot, as it flies to such a distance as seldom to be started a second time. — C. F. A.]

FAMILY EURYLAIMIDÆ.

39. *Eurylaimus javanicus*.

Eurylaimus javanicus HORSE. Trans. Linn. Soc. XIII, p. 170 (1821.) —

SALV. Ucc. Born. p. 107 (1874).—SCLAT. Cat. B. XIV, p. 463 (1888). — SHARPE, Ibis, 1889, p. 439.

[Kinabatangan River. Iris dark brown; bill cobalt-blue above with black cutting edges. — C. F. A.]

40. *Eurylaimus ochromelas*.

Eurylaimus ochromelas RAFFLES, Trans. Linn. Soc. XIII, p. 297 (1822).

— SALV. Ucc. Born. p. 108 (1874). — SCLAT. Cat. B. p. 465 (1888).

SHARPE, Ibis, 1889, p. 439.

[Kinabatangan River. Iris yellow; bill cobalt above with black cutting edges, below yellow. — C. F. A.]

41. *Cymborhynchus macrorhynchus*.

Todus macrorhynchus GMEL. Syst. Nat. I, p. 446 (1788).

Cymbirhynchus nasutus VIG. App. Mem. Raff. p. 654 (1831).

Cymborhynchus macrorhynchus SALV. Ucc. Born. p. 109 (1874).—SCLAT. Cat. B. p. 468 (1888).

Cymbirhynchus macrorhynchus SHARPE, Ibis, 1880, p. 440.

[Kinabatangan River. Iris bronzy green; bill above, and edges of mandible, bright blue. Rest of mandible yellow. The most common of the Broad-mouths taken. Easily shot; it seems stupid. — C. F. A.]

42. *Corydon sumatranus*.

Coracias sumatranus RAFF. Trans. Linn. Soc. XIII, p. 303 (1822).

Corydon sumatranus STRICKL. Ann. Mag. Nat. Hist. VI, p. 418 (1844). —
SALV. Ucc. Born. p. 111 (1874). — SCLAT. Cat. B. XIV, p. 466
(1888). — SHARPE, Ibis, 1889, p. 440.

[Sandakan. Iris dark brown. Bare skin on head pale reddish carmine.
— C. F. A.]

ORDER PICARIÆ.

FAMILY CYPSELIDÆ.

43. [*Callocalia fuciphaga*.

Iris black. This species breeds in caves and crevices of rocks where the nest is sheltered.

The British North Borneo Company receives annually a considerable sum as export duty on the nests of this species which are sent to China to be used in soups.

The salivary glands which secrete the mucus of which the nests are composed are very large for so small a bird.—C. F. A.]

44. *Callocalia linchii*.

Hirundo fuciphaga HORSE. (nec THUNB.) Trans. Linn. Soc. XIII, p. 143 (1821.)

Callocalia linchii HORSE. & MOORE, Cat. B. Mus. E. Ind. Comp. I, p. 100 (1854). — SALV. Ucc. Born. p. 121 (1874). — SHARPE, Ibis, 1890, p. 23.

[Suanlamba River. Iris black. Shot while flying about in a clearing.
—C. F. A.]

45. *Dendrochelidon comata*.

Cypselus comatus TEMM. Plan. Col. p. 268 (1824).

Dendrochelidon comata SALV. Ucc. Born. p. 123 (1874). — SHARPE, Ibis, 1890, p. 23.

[Iris brown. Found in clearings back of Sandakan, perched on branches of dead trees.—C. F. A.]

46. *Dendrochelidon longipennis*.

Hirundo longipennis RAFF. Bull. Sc. Soc. Phil. III, p. 153 (1804).

Dendrochelidon longipennis SALV. Ucc. Born. p. 122 (1874).—SHARPE, Ibis, 1890, p. 24.

[Sandakan. Iris brown. Taken in the same situations as the former.—C. F. A.]

FAMILY TROGONIDÆ.

47. *Harpactes kasumba*.

Trogon kasumba RAFF. Trans. Linn. Soc. XIII, p. 28 (1822).

Pyrotrogon kasumba SALV. Ucc. Born. p. 29 (1874).

Harpactes kasumba SHARPE, Ibis, 1890, p. 3.

[Sandakan. Iris very dark. Tip of bill and line over culmen deep blue, rest black.—C. F. A.]

48. *Harpactes diardi*.

Trogon diardi TEMM. Plan. Col. pl. 541.—GOULD. Mon. Trog. pl. 30.

Pyrotrogon diardi SALV. Ucc. Born. p. 28 (1874).

Harpactes diardi SHARPE, Ibis, 1890, p. 3.

[Sandakan. Iris dark brown. Top of bill and fore part of cutting edge and line on culmen black; other parts blue. Skin around eye purple. Not common. Found in shady places where there is a scarcity of undergrowth. Active towards the middle of the day.—C. F. A.]

49. *Harpactes duvauceli*.

Trogon duvauceli TEMM. Plan. Col. 291.—GOULD, Mon. Trog. pl. 32.

Harpactes duvauceli SHARPE, Ibis, 1890, p. 3.

Pyrotrogon duvauceli SALV. Ucc. Born. p. 29 (1874).

[Sandakan. Iris brown; bare skin over eye and gape dark blue; bill blue and black as in *H. kasumba*.

This specimen furnishes a striking example of how feebly a dried skin conveys an idea of what the natural life appearance really is. In life some of the fading parts of these tropical birds are vividly rich in color which, combined with the freshness of the plumage, excites the admiration of the most indifferent. — C. F. A.]

(To be continued.)

SUMMER ROBIN ROOSTS.

BY WILLIAM BREWSTER.

PERHAPS the greatest charm of ornithology is that its pursuit yields surprises when they are least expected. Especially true is this of the study of birds' habits, for a close watch kept on even the commoner species is sure, sooner or later, to reveal facts not in the books. Nor is this strange, for a lifetime is not long enough for fathoming all the secrets of the woods and fields immediately about one's home, while the general subject is inexhaustible. Moreover, a discovery which comes early and easily to one may long elude others equally vigilant. Yet who would suspect that at this late day, there could be an unwritten page in the life history of our Robin (*Merula migratoria*), a species of unusually general distribution, abundant nearly everywhere, and probably familiar to a larger number of people than any other bird on this continent? Nevertheless no author whom I have consulted so much as mentions the fact that Robins, while still in their summer haunts, form roosts* which are resorted to regularly night after night and season after season by hundreds or even thousands. Such gatherings, however, are by no means uncommon in Massachusetts, and they doubtless occur throughout the entire North, wherever Robins abound.

Possibly they have been neglected rather than overlooked. In either case I hope to show that they are not without interest and importance. What I have to say of them proceeds chiefly from personal experience, but I have also drawn freely from the notes of Messrs. Faxon, Batchelder and Torrey†, to all of whom I am indebted for much valuable aid in the preparation of this paper.

Our Massachusetts Robin roosts are invariably in low-lying woods which are usually swampy and are composed of such de-

*It has been known for some time of course, that Robins form large roosts while in their winter quarters in the South, but no very exact or precise information concerning these roosts seems to have been thus far recorded.

†Mr. Torrey has written an article on this subject for the October issue of the 'Atlantic Monthly.' It will relate, I understand, chiefly to a roost at Melrose Highlands which he has studied closely.

ciduous trees as maples, oaks, chestnuts, and birches, sometimes mixed with white pines. I have never known Robins actually to spend the night, however, in the latter, or indeed in any species of evergreen, except at Falmouth, Mass., where there has been a small gathering, these past two seasons, in a white cedar swamp. The trees in the roost may be tall and old with spreading tops, or crowded saplings only twenty to thirty feet in height, but it is essential that they furnish a dense canopy of foliage of sufficient extent to accomodate the birds which assemble there. As a rule, the woods are remote from buildings, and surrounded by open fields or meadows, but the latter may be hemmed in closely by houses, as is the case with a roost which at present exists in the very heart of Cambridge. A roost once established is resorted to nightly, not only during an entire season, but for many successive seasons. Nevertheless it is sometimes abandoned either with or without obvious cause, as the following account of the movements of the Cambridge Robins during the past twenty odd years will show.

I first found them roosting in the summer of 1867 in a tract of some ten or twelve acres of swampy woods situated about two hundred yards to the north and east of Fresh Pond and known to Cambridge collectors as the 'Maple Swamp.' The birds which came to this swamp approached it chiefly from the direction of Cambridge, the main body of the flight entering on the south and east sides. Probably it accommodated *all* the Robins which at the time bred in or very near Cambridge, for from every part of that city the flights led straight towards it. It also received some contributions from the country to the north and west, but these were comparatively trifling.

Either in 1873 or 1874 the Cambridge Robins deserted the Maple Swamp and found another roost in a similar piece of swampy woods on the opposite (northern) side of the Fresh Pond marshes, near the north bank of Little River not far from Spy Pond, and just within the borders of Arlington. The cause of this desertion was somewhat obscure, for the place which they left had undergone no sudden or marked alteration, nor had they been molested there to any considerable extent, while the change added nearly a mile to the length of their morning and evening flights, the course of which lay directly over the former roost where the passing birds would sometimes alight for

a moment as if to renew old associations. The new roost was many times more populous than the old, for it drew, in addition to the whole Cambridge contingent, a great number of birds from neighboring portions of Arlington and Belmont. In short, Robins poured into it nightly by thousands, and about equally on all sides. It was resorted to regularly until 1876 when the woods were cut down.

Neither note-book nor memory throws any light on where the Cambridge Robins roosted during the next five seasons. I was away from home much of the time, and lost all track of their movements until the summer of 1881 when I observed them passing over my house in nearly the opposite direction to that which they had taken in former years. Their roost proved to be within a few hundred yards of the Cambridge Museum, in Norton's Woods where it has continued ever since. I have no doubt it was founded by the same Robins—or their descendants—which in earlier days frequented first the Maple Swamp and later the woods on Little River.

There are equally good reasons for believing that a roost in the valley of Beaver Brook on the dividing line between Belmont and Waltham was also formed by some of the scattered legions of the Little River roost from which it is a little less than three miles distant. I discovered this Beaver Brook roost Aug. 25, 1884, when it contained an imposing body of birds—"thousands," according to the notes I made at the time. It has been occupied regularly since 1884, and is at present the largest colony known to exist anywhere near Cambridge.

South of the Charles River, in Longwood, about two and one half miles from the Norton roost, I found a considerable colony on the evening of Aug. 26, 1884. Their rendezvous was of the usual character—dense, swampy woods of oak and red maple. I did not again visit this place until Aug. 22, 1890, when I found that all the trees in the swamp had been killed by inundation. Nevertheless the Robins had not deserted the woods, but in fully their former numbers were roosting in a cluster of tall red maples, white oaks and chestnuts which, standing on a knoll above the reach of the water, had escaped the fate of their fellows. The entire area covered by the living trees was not over one quarter of an acre.

To go somewhat outside of the immediate neighborhood of

Cambridge, there is—or was in 1886—a roost in birch and maple woods on the banks of the Assabet River at Concord, remarkable for the small number of birds—only about fifty—which assembled there nightly, and a large colony at Melrose Highlands, discovered by Mr. Torrey in the summer of 1889. There are doubtless still others of which I have no knowledge scattered through this region.

Thus far I have spoken in only general terms of the number of Robins which sometimes congregate at these summer roosts. Several of my friends have attempted to count them, taking the best available stations outside the roosts and noting each bird as it flew in. This appears to be the only practicable method, for nothing whatever can be done inside the wood; but under the most favorable conditions it falls far short of absolute accuracy, especially at the larger roosts into which, at the height of the flight, the birds pour in such swarms that eye, brain and pencil are alike unequal to the task of noting all that pass in open view, to say nothing of the many that steal by close to the ground, under cover of bushes or the gathering darkness. Nevertheless any count carefully and conscientiously made, has this obvious value—it is sure to be well within the truth.

At the Beaver Brook roost Mr. Faxon with the help of an assistant counted 1883 incoming birds on the evening of Sept. 2, 1889. His next largest count, made without help Aug. 28 of the same year, was 1180. At Melrose Highlands Mr. Torrey, unaided, counted 1267, July 29, 1889, and 1517 on the same date in 1890. On July 28, 1890, with an assistant, he counted 2314. In both cases the assistant stood near his principal and was employed merely to divide the labor, no more ground being covered than on the other occasions.

On their face these figures indicate of course that the roost at Melrose Highlands is larger than that on Beaver Brook. But Mr. Torrey tells me that practically all his birds approach the woods from the same side, whereas, as Mr. Faxon and I have both observed, the Beaver Brook birds enter their roost in about equal numbers from every side. Before the two colonies can be fairly compared, therefore, it is evident that Mr. Faxon's count must be multiplied by four at least, if not, as he himself believes, by five. Any additions which should be made for birds that passed the observers uncounted would probably be so nearly equal in both

cases as not to affect the comparison, although doubtless they would swell both totals materially. The figures as they stand, however, are sufficiently impressive.

I made no counts at the Maple Swamp roost, but as I remember it, it never contained more than about 2000 birds. Its successor at Little River was not only very much larger, but if my notes and memory can be trusted, was by far the largest gathering that has ever fallen under my observation. Thus I find that on the evening of Aug. 4, 1875, I estimated the Robins which came in on two sides only at 25,000. This estimate was not mere guess work but was based on a count of the birds which passed during an average minute, multiplied by the number of minutes occupied by the passage of the bulk of the flight. Such a method, of course, is far from exact, and it very probably gave exaggerated results, but a deduction of fifty per cent would surely eliminate all possible exaggeration. As the birds were coming in quite as numerous on the two sides opposite to those where my estimate was made, it follows that the total, after making the above deduction, was still 25,000, and this I feel sure was far below the actual number.

The Norton roost is comparatively small, although, according to some careful counts made this season by Mr. Batchelder, it occasionally reaches an aggregate of about 1500 birds. The Longwood roost at the time of my last visit contained certainly 1000 and probably 1500 Robins.

During the past season Mr. Faxon saw a few Robins going to the Beaver Brook roost as early as June 11, but I have never observed any well-marked flights at Cambridge before the 20th of that month. The time probably depends somewhat on the date at which the first broods of young are strong enough to make the necessary effort, for the earlier gatherings are composed chiefly of young birds still in spotted plumage. Perhaps not all of those able to undertake the journey actually perform it at this period, for the movement, at its inception, is slight, and it gains momentum slowly. After July 1 it increases more rapidly, and by the middle of July becomes widespread and general, although it does not usually reach its height until the latter part of that month or early in August. By this time the old birds have brought out their second broods, and old and young of both sexes and all ages and conditions join the general throng. In fact it is

nearly certain that during August practically *all* our Robins visit some roost nightly.

It is by no means equally clear that individual birds or flocks go always to the *same* roost. If this were so the number at any given roost should remain uniform for a time after it has reached its maximum and before the migration begins. But it not only varies from week to week, but from night to night. Thus at the Norton roost, where, owing to the small size of the colony and to the fact that most of its members enter at one side over a wide opening, it is possible to count the birds with close approach to accuracy, Mr. Batchelder noted 861 on July 23, and on the next evening 1062, an increase of about 23 per cent! On the evening of Aug. 15 following, standing at precisely the same point, I counted only 518; on that of Sept. 4, 1251. Mr. Faxon's counts at Belmont and Mr. Torrey's at Melrose Highlands show similar variations. As already stated, Mr. Faxon's largest count was made Sept. 2, 1889, the next largest Aug. 28 of the same year. The Melrose roost, during the last two seasons, was apparently most populous in the latter part of July. More observations are perhaps necessary before the cause of these fluctuations can be definitely ascertained; but as Robins, when not tied down by family cares, are addicted to wandering more or less widely in pursuit of food or recreation, it seems more than likely that during August and early September they sometimes pass outside the limits of the region—often, be it remembered, only a few miles in extent—tributary to their chosen roosts. If this is true,—and it can scarcely be doubted—what more natural than that they should join at nightfall the general exodus from the surrounding fields and woods, even though it leads in a direction contrary to that which they have been accustomed to take? In support of this assumption is the fact that, as far as I have seen, the evening flights over any given place are invariably in one direction, that is there are never two sets of Robins passing in different directions at the same time, as would be the case were such rovers to return at evening straight to their own roosts. This theory, it will be observed, is only necessary to account for the acquisition of the habit by the young, for after it has become established a knowledge of the existence and position of several roosts would certainly be taken advantage of more or less frequently. Another factor which possibly has some influence on

the fluctuations under consideration is the Robin population of the country along the boundaries between two contiguous roosting areas. Why may not this constitute a neutral ground, its inhabitants sometimes visiting one roost, sometimes the other, as fancy or the conditions of wind and weather dictate? This suggestion, however, is pure speculation unsupported by any data.*

After the middle of September the roosting flights diminish rapidly, and by the end of the first week in October the roosts are practically deserted. The latest date in my possession at which any Robins have been actually found in a roost is Oct. 20, 1889, when Mr. Faxon noticed a few still lingering at Beaver Brook, but my notes record that on Nov. 6, 1888, I saw a succession of flocks flying, at sunset, into these Beaver Brook woods which, at the time, were "leafless"! About 200 Robins were seen on this occasion. They were in unusually large flocks, one, which passed me closely, containing fully 100 birds. If, as seems probable, they were migrants from further north it is interesting that they should have found their way to this roost; but perhaps enough local birds were with or near them to serve as guides. Mr. Faxon believes that our roosts receive some accessions from the north as early as September.

I had supposed that the old birds which accompany the young in the earlier flights to the roosts are individuals of both sexes that for one reason or another have not attempted to rear second broods. But Mr. Faxon informs me that as far as he has seen they are invariably males, and in disproof of the rest of my assumption furnishes the following interesting bit of evidence. The observations quoted were made in July, 1890, a little over a mile from the Beaver Brook roost.

* Since the above was written, I have definitely ascertained that over a belt of country a mile or more in width lying about midway between the Beaver Brook and Norton roosts the flight is directed sometimes to the former, sometimes to the latter roost. On the evening of Sept. 6, 1890, the Beaver Brook roost drew not only the entire Robin population from this neutral ground but also all the birds of an adjoining area which extended to within half a mile of, and had been before tributary to, the Norton roost. A profusion of ripe rum cherries had attracted to this area an unusual number of Robins. Probably the greater part of these belonged to the Beaver Brook colony and the less numerous local birds followed their lead on the return flight that evening. At least I can think of no other explanation of the phenomenon — which was repeated on the evening of Sept. 11. These observations throw much light on the questions above raised and in the main appear to support the theories which I have just advanced.

"The numbers of adult males *in song*, and the lack of females shown whenever I scrutinized the individual birds on their way to the roost—together with the fact that the Robins hereabouts seemed to be generally engaged at that time in rearing new broods—led me to doubt your theory and to attempt observations that would throw some light on the subject. It happened that on the 22d of July there were two Robin's nests on the place, one with three young, well advanced, and one with three eggs (female sitting). I had noticed several times that the male belonging to nest No. 1 carried food to his young late in the afternoon, while the flight to the roost was going on. On the day above-named, therefore, I began watching him closely toward evening, and saw him—after feeding the young—fly straight off for the roost, $1\frac{1}{4}$ miles away, at 7.30 P.M. You remember I have an unobstructed view from the house to the north and northwest, so the bird's course could be readily followed till he disappeared over the 'Granite Ledge.' On his departure the female came and took possession of the nest for the night. I saw her brooding the young until it became so dark that I could distinguish nothing, even at near range with opera-glasses. On the following evening the male again fed the young at about the same hour, then flew to the top of a spruce tree, and, after singing a good-night to his wife and babies, took a direct flight for the roost. The female then fed the young and settled in the nest. This was all repeated again on the 24th. While this was going on female No. 2 was sitting closely and I saw nothing of her mate, although the young hatched out on or before the 30th. The young in nest No. 1 left it on the 26th. This male has been on the place all summer, and by long familiarity we have come to distinguish him readily by a peculiar high note in his song. On the morning of the 24th I was awake from three to four o'clock, and our model husband and father returned to his family at 3.40 (sunrise 4.29), his arrival being announced by his glad call and morning song. On the morning of the 26th (which was cloudy) his salute was not heard from the favorite tree till four o'clock. He was singing pretty freely, even through the day, up to the time the young left the nest. Since then, although the whole family has remained about the nest up to this time, he has been almost silent (at least so far as singing is concerned), like the rest of his tribe at the present time.

"Now, although these observations were all made on one family of Robins, I have no doubt that they show, when taken in connection with the other facts, that the early flights to the roost are composed of the first brood young *together with the old males*. The later augmentation of the roost will come from the younger broods plus the females. What possibilities are suggested—if this be so—through the persistence of mutual relations between the old males and their offspring! The old birds must guide the young birds to the old roosting ground, and who shall say that this hegemony of the roost may not continue in a greater or less degree throughout the season? I do not mean to imply that each parent takes his own offspring in tow—but the nightly re-union of old and young *en masse* cannot but be an education for the youngsters. It was a revelation to me to find the male Robins taking care of their younger broods and wives by day, and going off nightly to sleep with their elder children!"

Most of the roosts which I have visited are resorted to by other birds besides Robins. The Little River colony always included some Bronzed Grackles and Cow Buntings, the former, to the number of a thousand or more, coming in all together in a single flock, or in two or three flocks closely following one another, the latter, perhaps half as numerous, arriving in a succession of flocks containing from twenty to thirty birds each. There were Swallows, also, in varying numbers. All these species alighted with the Robins and, as nearly as I could ascertain, passed the night among them. At the Falmouth roost there are quite as many Grackles as Robins (about two hundred of each), and the two species certainly roost together in the densest part of the cedars, although the Grackles arrive in one great flock, whereas the Robins drop in singly or in small parties after their usual fashion. There are also a good many Cowbirds besides a fair number of Red-winged Blackbirds and a few Kingbirds. The Cowbirds come in small flocks, and at first alight in the cedars, but soon fly down to, and doubtless pass the night in, some dense thickets of pepper-bush (*Clethra alnifolia*) which form a fringe around the edges of the swamp. The Norton roost accommodates a few Grackles and some Orioles (*I. galbula*). On one occasion I saw fully fifty of the latter settling themselves for the night in the undergrowth nearly beneath the oaks where the Robins congregate. At the Longwood roost there are Orioles,

but no Blackbirds of any species. A few Cedarbirds are also found in or near most of the roosts, and at Beaver Brook Mr. Faxon has seen Brown Thrashers.

Having dealt with what may be termed the statistics of my subject, it remains to give some description of these flights and the behavior of the birds at the roost. There is nothing about the start which would attract particular attention, but a close observer will notice that, as evening draws near, such Robins as may have been scattered about on the lawns or in the orchards near his position begin to show marked restlessness, ascending to the tops of the taller trees, calling a good deal — an old male perhaps singing. At length they take wing, one after another in quick succession, each, as it flies, uttering a loud note, and in straggling order disappear over the trees. The approach of another flock seems to excite them and hasten their departure, and they often follow it at once, all dashing off together as if struck by a panic, but I have never seen two flocks unite, although single birds occasionally join a larger number. Their course towards the roost is usually straight, but they sometimes turn aside to avoid a hill or follow the valley of a brook or river. As 'all roads lead to Rome,' so the various Robin paths traced across the sky at sunset converge more or less regularly from every side to their common centre, the roost. At roosts where for one or another reason most of the birds enter on a single side only and are drawn to something like a focus, they form, during the height of the rush, an apparently continuous stream. But close examination will show that the flight is always more or less intermittent and composed of single Robins and loose, straggling parties of from three or four to eighteen or twenty birds, each single bird or flock moving quite independently of all the rest.

Some—probably birds from the greatest distances—are a thousand feet or more above the earth, flying slowly apparently, with whirring, often intermittent, wing-beats, until almost over the roost when, perhaps after circling once or twice, they half close their wings and drop like meteors, or descend in graceful curves or spirals. Others, at lower elevations, seem to advance more rapidly and steadily, and upon nearing the roost glide down on gentler inclines. While still others skim close over the turf with arrowy swiftness, swerving now to this side, now to that, to avoid bushes or other obstacles, and turning sharply upward into

the treetops just as they gain the woods. The average height of flight is a little above the trees, but it varies at different periods of the same evening as well as on different evenings. As a rule the birds come lower and lower as the twilight deepens. They seem to fly lowest—as might be expected—on cloudy and especially rainy nights, but highest—as certainly would not be supposed—on cloudless nights *when the air is filled with dense haze*. On a particularly hazy evening (Aug. 31, 1889) the flights passing over Mr. Faxon's house were so high that "many birds were just discernible." As only 450 were counted against 835 of the preceding evening, Mr. Faxon concludes "that one half of them were beyond my ken." The presence or absence of wind may have more to do with this matter than the conditions just mentioned, for all the especially high flights that I have witnessed have occurred during nearly or perfectly still weather.

A good many birds approach the roost by short, interrupted flights, lingering on the way in isolated trees or groves where they often sing for a minute or two. At the Longwood roost more than two thirds of the entire colony arrive in this manner, probably because the swamp is in the bottom of a deep hollow surrounded by hills crowned with woods or orchards which afford convenient places for alighting.

The first comers reach the roost an hour or more before sunset, but for the next thirty or forty minutes the arrivals are few in number and at wide intervals although they gradually increase. There is rarely anything like a continuous or heavy flight until within fifteen or twenty minutes of sunset, but rather more than half the total number usually pass in before the sun has dipped below the horizon.

For about fifteen minutes after sunset the rush continues unabated. It then begins to slacken, always diminishing more rapidly than it grew, and often ending with somewhat marked abruptness. Stragglers, however, continue to arrive until it is too dark to see them distinctly except against the light in the western sky.

The earlier comers usually alight on the topmost twigs of the taller trees and sometimes, after a brief rest, fly back to the fields to feed, as if conscious that they were ahead of time. If there is a brook or spring near at hand many birds visit it to drink or bathe. They are also fond of collecting in the upper branches of

dead trees to bask in the last rays of the sinking sun, and a rum cherry tree loaded with ripe fruit is an irresistible attraction. But when the rush is at its height, there is rarely any loitering. Each bird, as it gains the woods, plunges into them at once, and with such directness and decision that one feels sure it has gone straight to its own particular perch. This, however, is evidently not the case, for during the entire period covered by the bulk of the flight, indeed for some time after the last belated straggler has stolen in, there is incessant and general agitation of the foliage as if a strong wind were blowing through the trees. This is caused by the movements of innumerable birds who, in the attempt to secure positions nearer the centre of the roost, or in thicker foliage, are continually darting from place to place, often plunging headlong into the branches or dropping through the leaves with much awkward and noisy fluttering. Either because of inability to see distinctly in the dim light, or with deliberate design to dispossess their fellows, such restless spirits often try to appropriate perches already occupied, and the squabbles which ensue, although quickly ended by one or the other giving way, are accompanied by outcries which rise above the general din of shrill, varied voices. If it is early in the season there is also more or less singing.

But the most characteristic and peculiar sound to be heard in a roost is that produced by the myriad wings constantly striking the leaves. This closely resembles the patter of hail or large rain drops on dry foliage at the beginning of a shower. There is also an equally steady and similar but slighter sound of falling excrement with which the ground and bushes beneath the roost are so thickly covered at times as to look as if sprinkled with snow flakes.* As the darkness deepens the tumult gradually subsides. One by one the shrill voices are hushed and the nervous flutterings cease, until, when the light has quite gone from the west and the stars are all out in the great dome overhead, a person might pause under the trees and listen intently for minutes without hearing anything save the occasional drowsy chirp or faint rustle of some half-awakened bird — sole tokens of the feathered host bivouacking in the leafy canopy above.

* Early in the season when the food of the Robin consists chiefly of earth worms and insects its excrement is of chalky whiteness. Later, when berries are eaten freely, the color becomes so dark that the deposits beneath the roost are no longer noticeable.

Mr. Batchelder visited the Norton colony before daybreak on the morning of July 8, 1890, to see the birds go out. His notes describe this experience in the following words:

"It was a warm morning, with a few thin clouds, and a moon at the third quarter in the meridian, at three A. M. when I reached the ground. There was hardly a trace of dawn in the east, but one or two Robins had begun singing. At 3.06 there was a chorus singing, so many birds that it was hard to distinguish any individual's song; it did not seem as if they sang with full power. At 3.16 I heard Robins singing in the trees on Divinity Avenue and probably, too, beyond the Museum. At 3.29 three birds left the roost. By this time there was so much daylight that the moon hardly cast any shadow. At 3.34 one more bird left; by 3.39, twenty had left; 3.41, thirty; 3.44, sixty; 3.46, ninety; 3.47, one hundred; 3.49½, one hundred and fifty; 3.51½, two hundred; 3.54, two hundred and fifty; 3.56½, three hundred; 4.00, three hundred and forty; 4.02, three hundred and fifty; 4.05, three hundred and sixty; 4.14, three hundred and seventy-five; 4.16 three hundred and eighty; 4.19, three hundred and eighty-five. At 4.20 it was bright daylight. By this time light fleecy clouds covered thinly most of the sky, and a cool west wind had risen. The Robins, most of them, scattered gradually among the trees adjoining the roost before they finally flew off, and this together with the fact that when they left they usually flew low, diving down nearly to the ground at the beginning of the flight, made it difficult to count the departures; probably many got away without my seeing them in the dim twilight. A considerable portion of them stopped to feed in the ball-field before going away; sometimes one of these would fly up into the trees again before leaving. At 4.20 the roost was pretty nearly deserted, but for perhaps a hundred yards around Robins were to be seen in the woods, mostly feeding on the ground; I should think there must have been a hundred of them."

There is much about the flight to the roost which will remind the reader of migration. The preliminary restlessness and gathering of the scattered birds; the excitement caused by the passage of other flocks; the wide spread of the infection; and the brief time in which a considerable area is practically drained of its entire Robin population;—all these are familiar features to one who has studied the phenomena of migration. As with the

latter, the roosting flights are doubtless started by a few experienced birds who, with a definite purpose in view, lead the way over familiar ground to an old haunt. Others follow and the rout becomes general, although many of the birds which it includes are probably at first as ignorant as they are careless of whither they are going and to what end. A further resemblance to migration may be found in the manner in which the different sets of birds perform their journey—not all together nor yet quite independently of one another, but in what is virtually a straggling army where the new recruits are always more or less directly under the guidance of veteran leaders. In short, so closely do these evening flights resemble those of migration that I can trace only two marked distinctions: (1) They are comparatively local affairs extending at most over only a few square miles; (2) they are undertaken, not because of the necessity of escaping from a region where food will soon fail or the climate become unbearable, but seemingly from a mere impulse to assemble nightly in one place for mutual companionship and protection. Neither of these differences is really fundamental, nor can either affect the obvious significance of the fact, established by Mr. Faxon, that the young are at first led to the roost by their parents. If the guidance of old birds is necessary along the short and simple paths to the roosts, can it be doubted that it is even more essential on the long and difficult journey southward?

ON A COLLECTION OF BIRDS MADE DURING THE
WINTER OF 1889-90, BY CYRUS S. WINCH, IN
THE ISLANDS OF ST. THOMAS, TORTOLA,
ANEGADA, AND VIRGIN GORDA,
WEST INDIES.

BY CHARLES B. CORY.

ST. THOMAS.

Dafila bahamensis (Linn.).

Aythya affinis (Eyton).

Tyrannus dominicensis (Gmel.).

Euethia bicolor (Linn.).
Compsothlypis americana (Linn.).
Cæreba portoricensis (Bryant).

The St. Thomas Creeper does not appear to differ sufficiently from the Porto Rico species to warrant its separation. In fact, specimens from St. Thomas, Tortola, Anegada, Virgin Gorda, and Calebra are apparently the same form. Eighty-five specimens were examined from the above-mentioned islands.

Margarops fuscatus (Vieill.).

ANEGADA.

Sterna maxima Bodd.
Ardea virescens Linn.
Macrorhamphus scolopaceus (Say).
Ereunetes pusillus (Linn.).
Calidris arenaria (Linn.).
Totanus flavipes (Gmel.).
Symphemia semipalmata (Gmel.).
Numenius hudsonicus Lath.
Ægialitis vocifera (Linn.).
Ægialitis semipalmata Bonap.
Ægialitis wilsonia (Ord.).
Columbigallina passerina (Linn.).
Falco dominicensis Gmel.
Falco caribbæarum Gmel.
Crotophaga ani (Linn.).
Bellona exilis (Gmel.).
Eulampis holosericeus (Linn.).
Lampornis ellioti, sp. nov.

Lampornis ellioti, sp. nov.

Similar to *Lampornis dominicus*, but differs from it in being smaller, in having the wings and tail shorter, and in having the belly, crissum, and under tail-coverts much paler. The white feathers on the thighs are more extended. Two central tail-feathers golden bronze. Length (skin) 4.20; wing, 2.45; tail, 1.50; bill, .87 inch.

Habitat, Anegada.

Elænea martineca (Linn.).
Euethia bicolor (Linn.).
Cæreba dominicensis (Bryant).
Dendroica ruficapilla (Gmel.).

TORTOLA.

Ardea virescens Linn.
Ardea cærulea Linn.

Actitis macularia (Linn.).
Zenaida zenaida (Bonap.).
Columbigallina passerina (Linn.).
Falco dominicensis (Gmel.).
Coccyzus minor (Gmel.).
Crotophaga ani (Linn.).
Eulampis holosericeus (Linn.).
Tyrannus dominicensis (Gmel.).
Cæreba portoricensis (Bryant).
Dendroica discolor (Vieill.).
Compsothlypis americana (Linn.).
Setophaga ruticilla (Linn.).
Margarops fuscatus (Vieill.).

VIRGIN GORDA.

Podilymbus podiceps (Linn.).
Ardea virescens Linn.
Nycticorax violaceus (Linn.).
Ægialitis vocifera (Linn.).
Ægialitis wilsonia (Ord.).
Columba leucocephala Linn.
Zenaida zenaida (Bonap.).
Columbigallina passerina (Linn.).
Falco columbarius Linn.
Falco dominicensis Gmel.
Falco peregrinus anatum (Bonap.).
Coccyzus minor (Gmel.).
Crotophaga ani (Linn.).
Bellona exilis (Gmel.).
Eulampis holosericeus (Linn.).
Tyrannus dominicensis (Gmel.).
Elænea martinica (Linn.).
Euethia bicolor (Linn.).
Cæreba portoricensis (Bryant).
Compsothlypis americana (Linn.).
Dendroica discolor (Vieill.).
Dendroica ruficapilla (Gmel.).
Setophaga ruticilla (Linn.).
Margarops fuscatus (Vieill.).

DESCRIPTION OF A NEW SUBSPECIES OF WILD TURKEY.

BY W. E. D. SCOTT.

A COMPARISON of many specimens of Wild Turkey from the region about Tarpon Springs, Florida, with birds from Virginia and northward shows such constant characteristics dividing the two, that for the Florida bird I propose the name

***Meleagris gallopavo osceola*, subsp. nov. FLORIDA WILD TURKEY.**

Description. — Similar to *Meleagris gallopavo* but perceptibly darker in general tone. *Coloring of tail and upper tail-coverts similar in both forms.* The white on the primary and outer secondary quills restricted, and the dark color (brownish black) predominating, the white being present only as detached, narrow, broken bars *not reaching the shaft* of the feather. The inner secondaries of a generally dirty grayish brown *without* apparent bars, but with brownish vermiculations on the inner web.

Type, ♂, No. 7079, collection of American Museum of Natural History, New York. Loaned to the Museum by W. E. D. Scott. Taken at Tarpon Springs, Florida, by the author. March 16, 1887.

The new subspecies is named after Osceola, a celebrated and remarkable chief of the Seminole tribe of Indians.

For convenience, and to make the relationship of the three forms of American Wild Turkey apparent, the salient characteristics of both *M. gallopavo*, and *M. g. mexicana* are subjoined. The principal and conspicuous feature of true *M. gallopavo*, the northern representative of the eastern *wild bird*, is the clear, well-defined black or dark brown and white barring of the primary quills on both inner and outer webs, the bars of the *two colors* being of equal width and the white bars reaching to and touching the shaft of the feather. The barring of the outer secondaries is similar, but while the white bars are as pure in color as those of the primaries, the darker bars are of decidedly lighter brown and not at all *black*, as is the ground color of the outer secondaries in *osceola*. The barring on the inner secondaries while still distinct *on both webs*, has the darker color, brownish with greenish iridescence, predominating. The color of the tail feathers and upper tail-coverts is similar in this form and in *osceola*.

Meleagris g. mexicana is related to the southern or Florida form and is similar to it in the coloration of the primary and secondary quills, but is widely separated from both forms (*M. gallopavo* and *M. g. osceola*) in the lighter coloration of the tips of the tail-feathers and the color of the tips of the tail-coverts, which in this form is buffy whitish.

A NEW SUBSPECIES OF THE SOLITARY SAND-PIPER.

BY WILLIAM BREWSTER.

Totanus solitarius cinnamomeus, subsp. nov. CINNAMON SOLITARY SANDPIPER.

SUBSPECIFIC CHARACTERS (*young in autumn plumage*): Similar to *T. solitarius*, but larger, the wings grayer, the light spots on the back, scapulars, and wing-coverts brownish cinnamon instead of white or buffy whitish; the sides of the head with more whitish, especially on the lores. No well-defined loreal stripe.

Male juv., autumnal plumage (No. 17,735, San José del Cabo, Aug. 30, 1887). Above grayish brown, the back, scapulars, and wing-coverts tinged with olive and coarsely spotted with brownish cinnamon, the nape with fine, obscure streaks of grayish; sides of neck rather more broadly and plainly striped; sides of head, including most of the lores, white, finely spotted with dusky; an immaculate white space extending from above the eye forward nearly to the forehead; a short dusky space at the base of the bill; under parts white, the breast, jugulum and sides of neck and body, but not the flanks, distinctly streaked with grayish brown; the under tail-coverts with conspicuous bars of dark slate; under wing-coverts and axillars white, thickly and coarsely barred with dark slate; under primary-coverts and primaries dark pearl-gray; the outer primary finely mottled with ashy white along the border of its inner web for a distance of about an inch beyond the tips of the under primary-coverts. Rump, upper tail-coverts and middle pair of tail-feathers colored like the back, but with the outer tail-coverts white with dark slaty bars, the middle tail-feathers notched along the edges of both webs with rusty white. All the other tail-feathers white, more or less tinged with rusty near their tips, and with wide bars of dark slate, most numerous on the outer webs.

In respect to the characters mentioned in the above diagnosis, seven specimens collected by Mr. Frazar in Lower California differ very constantly from twelve examples in corresponding

plumage from various parts of the eastern United States. In the latter the spots on the back, scapulars and wing-coverts are usually smaller and invariably much lighter, varying from ashy white to very pale buffy. The Eastern birds also have the shoulders and outer edges of the wings above blacker, and the dusky on the sides of the head usually in excess of the white ground color. They also have a well-marked dark loreal stripe which is either wholly wanting or but imperfectly indicated in the Lower California bird. The mottling on the breast of the latter seems to be also darker, the streaks more distinct. While not constantly diagnostic, the mottling on the inner web of the first primary, mentioned in the description of the type, is an excellent *average* character. I have seen it exhibited in only one example of true *solitarius* while in *cinnamomeus* it is generally present.

The difference in size is shown by the following table of measurements (in inches).

Cat. No.	Sex	Locality	Date	Wing	Tail	Tarsus	Culmen from feathers	
3,840	♂	Maine	Sept. 6, 1874	5.10	2.13	1.10	1.06	Coll. W. Brewster.
11,978	♂	"	Oct. 22, 1886	4.92	2.10	1.15	1.03	" " "
10,170	♂	Mass.	Aug. 29, 1888	5.07	2.06	1.18	1.17	" " "
12,728	♂	New York	Sept. 22, 1886	4.90	2.05	1.09	1.14	" " "
12,731	♂	"	Sept. 28, 1886	5.04	2.23	1.15	1.15	" " "
10,850	♂	New Brunswick	Sept. 15, 1885	5.07	2.14	1.15	1.14	" " "
10,035	♂	Maine	Oct. 12, 1885	5.10	2.28	1.16	1.15	" " "
3,843	♂	Mass.	Aug. 30, 1875	5.07	2.18	1.18	1.18	" " "
12,720	♀	New York	Sept. 22, 1886	5.13	2.16	1.15	1.08	" " "
6,427	♂	Ft. Snelling, Minn.	Aug. 24, 1888	4.83	2.14	1.30	1.17	*Dr. E. A. Mearns.
6,500	♂	" " "	May 6, 1889	5.00	2.15	1.20	1.20	" " " "
6,501	♂	" " "	" " "	5.06	2.22	1.17	1.20	" " " "
6,426	♂	" " "	Aug. 24, 1888	5.04	2.20	1.25	1.20	" " " "
17,734	♂	Lower Cala.	Aug. 25, 1887	5.36	2.25	1.26	1.30	Coll. W. Brewster.
17,735	♂	" "	" 30, "	5.37	2.37	1.23	1.19	" " "
17,736	♂	" "	" 31, "	5.25	2.18	1.25	1.15	" " "
17,747	♂	" "	" " "	5.18	2.22	1.22	1.22	" " "
17,738	♂	" "	Sept. 2, "	5.10	2.09	1.23	1.16	" " "
17,740	♂	" "	Aug. 30, "	5.40	2.28	1.24	1.26	" " "
17,741	♀	" "	Sept. 2, "	5.49	2.21	1.30	1.25	" " "
4,180	♀	Ft. Verde, Arizona	Aug. 28, 1885	5.00	2.15	1.14	1.17	*Dr. E. A. Mearns.
		" " "	" " "	4.90	2.05	1.17	1.08	" " " "

*American Museum, N. Y. City.

All the Lower California specimens just mentioned are young birds, but the collection contains a single adult male in autumn plumage (No. 17,739, San José del Cabo, Oct. 28, 1887) which, in every respect, is identical with autumnal adults in my collection from the Eastern States. I see no reason why it may not be regarded as an example of true *solitarius*.

Two specimens from Fort Verde, Arizona, in the collection of Dr. Mearns agree closely with the Lower California birds in the color of the wings and the character of the dorsal spotting, but in other respects they are intermediate between the Lower California and Eastern birds.

RECENT LITERATURE.

Slater's Catalogue of the Tracheophonæ.*—The Tracheophone passeres, as is well-known, are restricted to the warmer parts of the two American continents, being for the most part tropical in their distribution. They comprise the four families Dendrocolaptidæ, Formicariidæ, Conopophagidæ, and Pteroptochidæ, and differ from other Passeres in the peculiar modification of the lower end of the trachea for the production of vocal sounds. They are birds of mostly small size, the largest not much exceeding the stature of a Jay, the average size being that of a small Thrush. They vary greatly in form and habits, and are mostly denizens of the thicket or the forest. Many of the Dendrocolaptidæ resemble the Tree-creepers in form and habits, having stiffened spiny tails and the same manner of life. Other forms of the same family are terrestrial, and are remarkable for the large domed clay nests they construct, from which they derive the name of Oven-birds. The Formicariidæ are likewise very variable in form, some of them being decidedly Shrike-like, while others are more like Thrushes and Warblers, and still others, as regards external form, recall the Pittas of the Old World. The Pteroptochidæ may be compared to gigantic Wrens.

In the present volume 559 species are recognized, of which 271 belong to the Dendrocolaptidæ, 256 to the Formicariidæ, 11 to the Conopophagidæ, and 21 to the Pteroptochidæ. Of these 531 are represented in the British Museum collection, the number of specimens aggregating 4482. Many other species are referred to in foot-notes, which, says the author, "may ultimately turn out to be perfectly valid," only such species as the author has *seen* being, as a rule, admitted!

The style of treatment is the same as in the same author's previous volumes of the series, noticed in former numbers of this journal. The

* Catalogue of the | Passeriformes, | or | Perching Birds | in the | Collection | of the | British Museum. | — | Tracheophonæ, | or the Families | Dendrocolaptidæ, | Formicariidæ, | Conopophagidæ, and Pteroptochidæ. | By | Philip Lutley Slater. | London: | Printed by order of the Trustees. | 1890.—8vo, pp. xviii X 372, pll. xx. (Volume XV of the 'Catalogue of the Birds in the British Museum.')

author states that "his work has no claims to be called a monograph, but is simply a catalogue of species and specimens, which it is hoped, however, may tend towards the elucidation of a very difficult subject by future laborers." Its utility will certainly prove almost beyond estimate, even to those who may not be prepared to agree fully to all of the conclusions presented. In such obscure and difficult groups as are here treated, opinion must vary on many points, being influenced by the amount of material in hand and the standpoint from which it is viewed.

In comparing the present volume with the 'Nomenclator Avium Neotropicalium' of Sclater and Salvin, published in 1874, it is of interest to note that the number of species now recognized for the Tracheophonæ has increased about twenty-five per cent in sixteen years, there being about 120 species added in the present volume that were not included in the 'Nomenclator.' Of these about 75 have been described since the publication of the 'Nomenclator', while nearly 50 then ignored are now given place as probably valid species. The number of genera has proportionately increased, and about in the same ratio as regards the recognition of generic groups formerly ignored. Of the nearly 90 species referred to only in foot-notes, probably one half to two thirds will prove to be recognizable forms, while many of those now registered as species will doubtless take rank eventually as merely local races or subspecies.

Species described as new or re-named are the following: (1) *Thamnophilus puncticeps*, p. 212; (2) *Myrmotherula inornata* (Berlepsch, MS.), p. 243; (3) *Cercomacra hypoleuca*, p. 268; (4) *Myrmeciza pelzelni*, p. 283; (5) *Grallaria nigro-lineata* (Berlepsch, MS.), p. 321; (6) *Liosceles erithacus*, p. 345. A new genus is *Thamnocharis* (p. 310).

As regards matters of nomenclature, we regret to see that the law of priority is not always respected, as when, in several cases, an earlier name, based on the female sex, is rejected for a later one based on the male; or when, as in the case of *Formicarius cayennensis* Bodd. (p. 302), a much used early name is rejected, because indicating "a wrong locality," for an uncurrent later name.

In conclusion we cannot do less than tender hearty thanks, in behalf of ornithologists at large, to the accomplished author of the volume under notice for the great service he has rendered in marshalling one of the most difficult sub-orders among birds into an orderly array.—J. A. A.

Allen on Birds from Quito.—The collection upon which this paper* is based was "made in the immediate vicinity of Quito by M. L. Söderström," and "numbers 210 specimens, representing 79 species, one of which proved to be new." A list is given of all the species contained in the collection, many of them accompanied by critical remarks having reference to questions of synonymy or relationship, those thus discussed being as follows:—

* Notes on a Collection of Birds from Quito, Ecuador. By J. A. Allen. Bull. American Museum Nat. Hist., Vol. II, No. 2, March, 1889, Art. VI, pp. 69-76.

Diglossa sittoides (Lafr. & D'Orb.), differing in certain respects from a Bogota example.

Dacnis egregia æquatorialis Berl., confirming the differences on which the separation of the Ecuadorian from the Colombian bird was based.

Chlorophanes spiza cærulescens (Cass.), of which *C. s. exsul* Berl. is said to be a synonym.

Chlorophanes spiza guatemalensis (Cass.), the skins so identified being "evidently of a different make from the others, and are no doubt from a different locality."

Certhia cærulea (Linn.), said to "agree perfectly with Bogota examples."

Procnias viridis Ill., usually called *P. tersa* (Linn.), apparently good reasons being given for changing the specific name, while Mr. Allen states his inability, "with a large series of specimens" before him, to distinguish a "smaller subspecies *occidentalis*."

Habia ludoviciana (Linn.), from the "foot of Pichincha, alt. 10,000 ft.," the date unfortunately not given.

Pipra auricapilla Licht., which differs in several particulars from the typical bird of eastern Brazil, Cayenne, and Trinidad.

Tityra personata Jard. and Selby, reference being made to 'The Auk,' Vol. V, 1888, p. 287.

Tityra nigriceps Allen, first described in 'The Auk,' Vol. V, 1888, p. 287.

Pithys peruvianus (Tacz.), which is easily separable from *P. albifrons* of Cayenne and Brazil.

Galbula albirostris chacocephala (Dewille), "which name may be employed to designate this fairly marked Andean and West Brazilian race" of *G. albirostris*.

In addition to these notes on particular species, two genera are specially considered: *Chiromachæris* Cabanis (*et. auct.*), which must be changed to *Manacus* Brisson; and *Tityra*, of which an excellent and very convenient key to the species and subspecies is given on page 73. — R.R.

Allen on Birds collected in Bolivia. — With possibly the exception of Messrs. Sclater and Salvin's report on Mr. C. Buckley's collection of Bolivian birds,* Mr. Allen's "List of the Birds collected in Bolivia by Dr. H. H. Rusby,"† is by far the most important publication which has appeared on the birds of that country.

* On new Species of Bolivian Birds. By P. L. Sclater, M. A., Ph. D., F. R. S., and Osbert Salvin, M. A., F. R. S. Proc. Zool. Soc. Lond. 1876, pp. 352-358, pls. xxx-xxxiii. (Based on a collection of "between 400 and 500 skins of about 194 species," 15 of which, and 1 new genus, are described as new.)

† List of the Birds collected in Bolivia by Dr. H. H. Rusby, with Field Notes by the Collector. By J. A. Allen. Bull. Am. Mus. Nat. Hist., Vol. 11, No. 2, March, 1889, pp. 77-112.

The collection was made during the years 1885 and 1886 by Dr. H. H. Rusby, "the well-known botanist," who "made a journey diagonally across northern Bolivia, starting at Arica in Chili and proceeding thence north-eastward to the head waters of the Rio Madeira, and thence down this river to the northern border of Bolivia." The number of specimens was about 400, representing 267 species, about 125 of which are added to the list of previously known Bolivian birds, while no less than 13 are apparently new to science. A complete list of the species is given, with critical annotations when they seem called for, while Dr. Rusby's very interesting field-notes are given in brackets and are followed by the initial 'R'.

The new species and subspecies described are the following: — *Empidonax boliviannus*, *Chiroxiphia pareola bolivianna*, *Enicornis striata*, *Leptasthenura fuscescens*, *Leptasthenura fuliginiceps bolivianna*, *Synallaxis griseiventris*, *Anabazenops immaculatus*, *Picolaptes oblectus*,* *Myrmochanes* (gen. nov.) *hypoleucus*, *Conopophaga rusbyi*, *Phlogopsis notata*, and *Scytalopus boliviannus*.

The annotated species are the following: *Atticora cyanoleuca montana* Baird, the subspecific characters originally ascribed to which are distinctly seen in the Bolivian bird; *Cæreba cærulea* (Linn.), Bolivian specimens of which "have the bill very short and slender, shorter and smaller even than Bogota specimens . . . labelled *Cæreba cærulea microrhyncha* by Berlepsch"; *Euphonia lanirostris* Lafr. & D'Orb., which differs "from Bogota specimens (*E. crassirostris* Scl.) in having the bill much smaller, the yellow of the cap much deeper (orange-yellow)," and in other particulars; *Paroaria gularis cervicalis* (Scl.), *P. cervicalis* Scl. being "doubtless only a local form of *P. gularis*," to which Mr. Allen thinks *P. capitata* (D'Orb. & Lafr.) also probably referable in the same manner; *Pachyrhamphus niger* Spix, a specimen of which "is much blacker below, with less white on the scapulars, wings, and tail than in Brazilian and Cayenne birds"; *Lathria plumbea* (Licht.), if not *L. cinerea* (Vieill.), which Mr. Allen regards as doubtfully separable; *Cinclodes rivularis* (Cab.), the complicated synonymy of which is disentangled; *Formicarius analis* (Lafr. & D'Orb.), a specimen of which agrees essentially with the type; *Pteroptochos albifrons* Landb., which Mr. Allen regards, and we believe correctly, as a "good species," or at least as not referable to *S. magellanicus*"; *Hylactes castaneus* Phil. & Landb., the young of which is described; *Trogon collaris* Vieill., a male of which is described; *Galbalcyrrhynchus leucotis* Des Murs, the single specimen having the bill "about 7 mm. longer than the maximum given by Sclater in his monograph of the family."—R.R.

Allen on the Genus Cyclorhis. — Three times within the space of five years had this genus been 'monographed': by Hans Gadow in 1885,† by

* This, however, from an unknown locality, the type belonging to the Lafresnaye collection in the Museum of the Boston Society of Natural History.

† In 'Catalogue of the Birds in the British Museum,' Vol. VIII, pp. 316-321.

Dr. Schlater in 1887,* and Count von Berlepsch in 1888,† but in each case with only partially satisfactory results, owing in large part to lack of a sufficient number of specimens to show what limit of variation in any one form should be allowed for individual variation. Happily this deficiency, in the case of one species at least (*C. viridis*), was supplied by material which came into Mr. Allen's hands while the subject was fresh, thus enabling him to supplement the efforts of his predecessors by a much more elaborate paper‡. The additional material which enabled Mr. Allen to obtain the clue to individual variation in species of this genus formed part of the "Smith collection of Brazilian birds, recently purchased by the American Museum of Natural History," and embraced no less than 46 specimens of *C. viridis*. "These specimens, while presenting great variations in respect to coloration, size, and particularly in the size and color of the bill, are obviously referable to a single species, the two extremes of the series being completely connected by intermediate phases." Mr. Allen further observes that "while there is evidently a wide range of individual variation, in coloration as in the size of the bill, much of the very great variation in plumage is unquestionably due to season and age"; but he says "there is no apparent difference in the sexes, except that the females are found on measurement to average slightly smaller than the males." By the aid of this material and specimens from other sources Mr. Allen was enabled to satisfactorily separate and define *C. viridis* (Vieill.) from *C. ochrocephala* Tsch. and properly allocate their synonymy, and give satisfactory reasons for considering *C. cearensis* Baird, *C. wiedii* Pelz., *C. albiventris* Scl. & Salv., and *C. alirostris* Salv. as mere synonyms of *C. viridis* (Vieill.). Mr. Allen's critical remarks are not, however, confined to *C. viridis* and *C. ochrocephala*, but having in hand "much other authentic material . . . making, with the large series of the American Museum of Natural History, 123 specimens, and representing all the species of the genus except *C. alirostris* Scl.," a few observations on other species of the genus are added. These are (1) *C. flavipectus* Scl., which name is restricted to specimens from Colombia; (2) *C. flavipectus subflavescens* (Cab.), from Central America; (3) *C. flavipectus trinitatis* subsp. nov., from Trinidad; (4) *C. flaviventris* Lafr., from southern Mexico, southern Yucatan, and Guatemala; (5) *C. flaviventris yucatanensis* Ridgw., from northern Yucatan; (6) *C. insularis* Ridgw., from Cozumel Island; (7) *C. guianensis* (Gm.), from Guiana and Amazonia. The forms of this genus are thus for the first time treated from the standpoint of modern nomenclature, trinomial designations being applied to those which are found to intergrade with others. The extent to which this reduction of

* Remarks on the Species of the Genus *Cyclorhis*. Ibis, fifth series, Vol. V, July 1887, pp. 320-324, pl. x.

† On the Genus *Cyclorhis*, Swains. Ibis, fifth series, Vol. VI, Jan. 1888, pp. 83-92.

‡ On *Cyclorhis viridis* (Vieill.) and its Allies, with Remarks on other species of the Genus *Cyclorhis*. Bull. Am. Mus. Nat. Hist. Vol. II, No. 3, June, 1889, pp. 123-135, figs. 1-7.

supposed species to the rank of geographical races or subspecies may be further carried is not yet known, but the material examined by Mr. Allen foreshadows still further reduction. For example, "the Cayenne form known as *C. guianensis*," says Mr. Allen, "probably will be found to grade into *C. viridis* through a paler race representing the species in northeastern Brazil, . . . for which Baird's name *cearensis* (= *albiventris*) would be available. In short, it seems probable that the whole group centring about *C. flavipectus*, including not only its several recognized subspecies but *C. guianensis* and *C. viridis*, and possibly also *C. flaviventris* through its southern forms,* will be found, when ample material for the study of the genus has been gathered, to imperceptibly blend."

The article is supplemented by Mr. Allen's "present impressions of the status, relationships, and distribution of the various forms of *Cyclorhis*," concluding with an excellent key to the species. — R. R.

Allen's Descriptions of New South American Birds.—Eight new species and subspecies, belonging to various families, are described in this paper,† as follows: (1) *Thryothorus macrurus*, Bogota; (2) *T. longipes*, Ambato. Ecuador; (3) *Platyrhynchus bifasciatus*, Chapada, Matto Grosso, Brazil; (4) *P. insularis*, Tobago; (5) *Euscarthmus ochropterus*, Chapada, Matto Grosso; (6) *Sublegatus virescens*, Chapada; (7) *Empidonax lawrencei* (= *Ochthoeca flaviventris* Lawr.); (8) *Thamnophilus doliatus mexicanus* (= *T. affinis*, Cab. & Heine, pre-occupied). The "remarks" on other species refer to the following: (1) *Thryothorus "mysticalis"*, of the Rusby Collection, which proves to be "probably a large, very strongly colored example of *T. genibarbis*, or else an undescribed form" somewhat intermediate between the latter and *T. mysticalis*; (2) *Porphyrospiza caerulescens* (Max.), this being the correct name for the bird usually called *P. cyanella* (Sparrrn.); (3) *Mecocerculus uropygialis* Lawr., a specimen of which, "said to have been collected at a point thirty miles north of Bogota" is in the collection of the American Museum of Natural History, "thus greatly extending the range of the species to the northward"; (4) *Euscarthmus pelzelni* Scl., a second specimen of which is in the collection, from Cuyaba, Matto Grosso; (5) *Habrura superciliaris* (Wied), being the species usually called *H. pectoralis* (Cab. & Heine); (6) *Habrura minima* (Gould), very generally synonymized with *H. pectoralis*, but restored to specific rank‡; (7) *Phyllomyias incanescens* (Wied), which is now first referred to its proper genus, being the *Muscipeta incanescens* of Wied, of which *Phyllomyias berlepschi* Scl. is a synonym; (8) *Ornithion cinerascens* (Wied), being the bird usually called *O. obsoletum* (*Muscicapa obsoleta*

* Unfortunately we are not informed what these "southern forms" of *C. flaviventris* are!

† Descriptions of New Species of South American Birds, with Remarks on various other little known species. Bull. Am. Mus. Nat. Hist. Vol. II, No. 3, June, 1889, pp. 137-151.

‡ In a "Note on the Type of the Genus *Habrura* Cab. & Heine," on p. 147, this species is shown to be the type, instead of *H. pectoralis*, as given by Sclater.

Temm.); (9) *Formicivora griseigula* Lawr., which proves to be "an immature *Thryothorus coraya* (Gm.)"; (10) *Peristera mondetoura* Bon., from Bogota.—R.R.

Allen on Individual and Seasonal Variation in the Genus *Elainea*.*

While the family Tyrannidae has been generally recognized as perhaps the most difficult to study of all the large distinctively American bird groups, the genus *Elainea* is admitted to be its most perplexing genus. In working up the very extensive 'Smith Collection' of birds from Chapada, Matto Grosso, Brazil, Mr. Allen found himself confronted by the not very pleasant or promising task of naming a series of 129 specimens "from an area of about five miles radius," representing several species, but how many only the most patient investigation could determine. The chief difficulty lay with specimens belonging to the *pagana-albiceps* group, of which, fortunately, no less than 116 specimens were present; but this richness of material for a while proved rather an embarrassment than an aid, a large proportion of the specimens being "referable to the true *E. pagana* of authors, and a still larger number to what is commonly recognized as *E. albiceps*, while the great bulk of the series" was "made up of specimens variously intermediate between these two forms." Mr. Allen found it desirable, "in order to satisfactorily determine the relationships of the puzzling birds represented in the Chapada series," to bring together as much material as possible; consequently, the *Elaineas* of the National Museum collection (numbering about 200 specimens), the Boston Society of Natural History, and the Museum of Comparative Zoölogy in Cambridge, were borrowed for the purpose. After patient study of this material Mr. Allen was enabled to reach definite conclusions, some of which were probably no less surprising to himself than to others who have read his excellent paper. "The Chapada series of *Elainea* referable to the *E. pagana-albiceps* group," says Mr. Allen "presents a wide range of variation, not only in size and coloration, but especially in the size and form of the bill. Were there fewer specimens, representing the same range of variation, but with most of the 'intermediates' left out, it would be quite easy to divide the series into several apparently well-marked species, and not hard to find names for them among the so-called species already described. Especially would this be the case were the specimens gathered from a wider geographical area, with the leading forms more or less localized. As the case stands, however, the specimens are all from a single very limited locality, and the gaps between the extreme forms are completely filled by specimens presenting every intermediate phase of variation. Besides, the variations in any other feature,—as in the form of the bill, in general size, the relative length of the outer primaries, or the relative length of wing to tail,—are found not to be correlated with varia-

* Remarks on Individual and Seasonal Variation in a large series of *Elainea* from Chapada, Matto Grosso, Brazil, with a Revision of the species of the restricted Genus *Elainea*. Bull. Am. Mus. Nat. Hist. Vol. II, No. 3, Article XVIII, Oct. 1889, pp. 183-208.

tions in other features; so that while the specimens may be somewhat arbitrarily divided into series on general size, or on the form of the bill, the important variations in other features are not correlated with them but present all sorts of combinations of characters. Indeed, division on either size alone or color alone, or exclusively on the form of the bill, cannot be made satisfactorily, since there is no point at which a separation can be made."

Part I of Mr. Allen's paper is devoted to a general discussion of individual variation, with special reference, of course, to the genus *Elainea* and the Chapada specimens in particular. Part II consists of a review of the species and subspecies, based on the material examined, the "*E. pagana-albiceps* group" receiving most attention. Of *E. pagana* several subspecies are recognized: *E. pagana* (Licht.) proper from Eastern South America, north to Trinidad; *E. pagana subpagana* from Central America and Mexico; *E. pagana martinica* (Linn.) from the Antilles and Cozumel, to which Mr. Allen refers *E. cinerascens* Ridgw. from Old Providence; and *E. pagana albiceps* (D'Orb. & Lafr.) from "the Andean region, from Colombia and Ecuador southward, including Peru, Bolivia, Paraguay, the extreme southern part of Brazil, and the region thence southward to the straits of Magellan." Regarding the Antillean form, Mr. Allen notes that "birds from different islands present much variation," and that "it is probable that large series from different islands, when compared, will be found to present slight average differences, as in case of other birds of similar distribution"; but he adds that at present lack of material renders an attempt to discriminate such forms impracticable. We trust the necessary material may soon be placed in Mr. Allen's hands, in order that he may be able to complete the work which he has so ably begun.—R. R.

Allen on the Maximilian Types of South American Birds.—In a paper of 68 pages, Mr. Allen has given a complete list of the Maximilian types of South American birds in the Museum of Natural History, New York City,* the names of Maximilian's new (actual or supposed) species being cited under their equivalent current names, the order of arrangement being that of Selater and Salvin's 'Nomenclator Avium Neotropicalium.' The catalogue has to do with "only the South American birds, and more especially with the types of the species described as new by the Prince in his 'Reise nach Brasilien' and 'Beiträge zur Naturgeschichte von Brasilien,'" in which works "about 160 species were described as new, of which about three fourths are still represented in the Maximilian Collection by the original or 'type' specimens." Altogether about 183 Maximilian names are discussed, the list including others beside the species which he described as new. The whole number are arranged, at the end of the paper (pp. 273-276), in a most convenient and useful 'Con-

* On the Maximilian Types of South American Birds in the American Museum of Natural History. Bull. Am. Mus. Nat. Hist., Vol. II, No. 3. Article XIX, December, 1889, pp. 209-267.

cordance and Index,' "in the order in which they stand in his 'Beiträge, with a reference to the volume and page of the 'Reise' or 'Beiträge' where they were first described," while "in the second column is given the equivalent name under which they are treated in the present paper, the figures at the extreme right referring to the page where the species is considered."

The paper is an extremely important one, and in its preparation the author has performed a good work, for which students of South American ornithology will be grateful.—R. R.

Dionne's Catalogue of the Birds of Quebec.*—The writer modestly expresses a hope that his work will be of some use as a guide to the young ornithologists of Quebec. This is evidently its chief purpose, and is one that cannot fail to be amply fulfilled. The Catalogue follows the classification and nomenclature of the A. O. U. Check-List, and gives also—as an aid in reference to earlier writers—the names and numbers borne by each species in the check-lists of Baird, Coues, and Ridgway. Following this comes a generalized statement of the bird's distribution, adapted from the A. O. U. Check-List, together with information as to its occurrence, abundance, times of appearance, etc., in the Province of Quebec. Of the 273 species and subspecies recorded, the following seem noteworthy: *Megalestris skua*, *Larus brachyrhynchus*, *Puffinus cinereus*, *Anas strepera*, *Ardea cœrulea*, *Otocoris alpestris praticola*, *Pica pica hudsonica*, *Ammodramus caudacutus subvirgatus*, *Pipilo erythrophthalmus*, *Piranga rubra*. It is to be regretted that in recording rarities Mr. Dionne does not always give full particulars and, in some of these cases, that the specimens were not identified by some ornithologist of unquestionable authority.

The author justly regrets the scantiness of the data at his command, and, doubtless, more field work in his own neighborhood would have led him to change some statements, especially as to the abundance of certain species. Nevertheless he gives us much valuable information, and a book that promises to serve so well the purpose for which it was written may well be spared too searching criticism.—C. F. B.

Proceedings of the Linnæan Society.†—The Linnæan Society has recently issued a brief 'abstract' of its Proceedings for the year ending March 7, 1890. "A large proportion of the papers read before the Society have been published in 'The Auk,' 'Forest and Stream,' and the 'Bulletin of the American Museum of Natural History,'" and are only mentioned here. The bulk of the abstract is made up of brief items, chiefly ornithological, and many of them of much importance. The only paper of any

* Catalogue | des | Oiseaux | de la Province de Québec | avec des Notes sur leur Distribution Géographique | par | C. E. Dionne | [cut] | Québec | des Presses à Vapeur de J. Dussault, | Port Dauphin | 1889. 8vo. pp. 119.

† Abstract | of the Proceedings of the | Linnæan Society | of | New York | for the Year ending March 7, 1890. 8vo. pp. 10.

length is by Mr. F. M. Chapman, 'Notes on the Carolina Paroquet (*Conurus carolinensis*) in Florida' (pp. 4-6), in which he gives interesting details of his experience with this bird on the Sebastian River in March, 1889. The publication unfortunately lacks an index.—C. F. B.

Minor Ornithological Publications. — 'Forest and Stream,' last noticed here in Vol. VI, pp. 174-180 (April, 1889), continues to have much valuable ornithological matter. It is greatly to be regretted that some of the best contributors to its natural history columns hide their identity under pseudonyms, and thus lessen the scientific value of their communications. Vols. XXX-XXXIV, Jan. 26, 1888-July 17, 1890, contain the following (Nos. 1678-1932) :—

1678. *Kingfisher in New York in Winter.* By Robert B. Lawrence. 'Forest and Stream,' Vol. XXX, Jan. 26, 1888, p. 6.

1679. *Ice-bound Rail.* By Robert B. Lawrence. *Ibid.* — *Porzana carolina* at Flushing, L. I., Dec. 23.

1680. *The Hardy Snipe.* By W. D. Pickett. *Ibid.*, Feb. 2, p. 24. — *Gallinago delicata* wintering in Wyoming.

1681. *Winter Bird Notes.* By X. Y. Z., J. L. K., and C. L. S. *Ibid.* p. 25.

1682. *Food of the European Sparrow.* By Hoosier. *Ibid.*

1683. *Kingfisher in Winter in Massachusetts.* By C. B. *Ibid.*, Feb. 9, p. 44.

1684. *Powder-down Feathers in Herons.* By C. E. B. *Ibid.*, p. 46.

1685. *Canadian Birds.* *Ibid.* Feb. 16, p. 64. — A review of Montague Chamberlain's 'Catalogue of Canadian Birds.'

1686. *Winter Kingfishers.* By A. B. George. *Ibid.* — In Michigan.

1687. *The Food of Rapacious Birds.* By Edward Swift. *Ibid.*, March 1, p. 104. — With tabulated report of contents of stomachs of fourteen species.

1688. *Kingfishers in Winter.* By George H. Shelton. *Ibid.* — In Connecticut.

1689. *The Food of Rapacious Birds.* By M. G. Ellzey, M.D. *Ibid.*, March 15, p. 144. — Especially *Accipiter velox*.

1690. *The Willet (Symphemia semipalmata) Alighting on Trees.* By John C. Cahoon. *Ibid.*, March 22, p. 165.

1691. *Ridgway's North American Birds.* *Ibid.*, March 29, p. 184. — Review of 'A Manual of North American Birds' by Robert Ridgway.

1692. *A Little Girl on Sparrows.* By Susie J. Allen. *Ibid.* — *Passer domesticus*.

1693. *The American Skylark.* By R. I. B. *Ibid.*, p. 185. — *Alauda arvensis* on Long Island.

1694. *A Blue Heron on Mid-ocean.* By Mac. *Ibid.*

1695. *Notes on the English Sparrow.* By Ernest E. Thompson. *Ibid.*, April 5, pp. 204-205. — With tabulated report of contents of stomachs examined.

1696. *An Early Yellow Rail*. By E. H. Austin. *Ibid.*, p. 205. — At Gaylordsville, Conn., March 24.
1697. *Aquatic Turkeys*. By Dupont. *Ibid.*, April 12, p. 223.
1698. *Birds at a Government Post*. By Edward Clark. *Ibid.* — In winter and early spring at David's Island, New York Harbor.
1699. *The Song Sparrow*. By Ernest E. Thompson. *Ibid.*, April 19, p. 244. — Plan for investigating its life history.
1700. *The "Cranesback."* *Ibid.*, April 26, pp. 268-269. — Chiefly a quotation from a letter by J. E. Harting in the 'London Field,' giving evidence of small birds being carried in migration on the backs of Cranes, Geese, etc.
1701. *Post-nuptial Migration*. By Roxey Newton. *Ibid.*, p. 269. — The males of certain species leaving their mates at the beginning of incubation.
1702. *Bird Notes from Canada*. By J. L. [=M.] Lemoine. *Ibid.* — Migrants at Quebec.
1703. *Col. Pickett's English Snipe*. *Ibid.* — *Gallinago delicata* wintering in Wyoming. See also *antea*, No. 1680.
1704. *Are Hawks Destructive of Game*. By M. G. Ellzey, M. D. *Ibid.*, May 3, pp. 288-289. — Some notes on *Archibuteo lagopus sanctijohannis*.
1705. *Spring Bird Notes*. By Eben P. Dorr. *Ibid.*, p. 289. — At Buffalo, N. Y.
1706. *The Bird Hosts*. Editorial. *Ibid.*, May 24, p. 345. — Spring migrants about New York City.
1707. *Some Autumn Birds of the St. Mary's Lake Region*. By Geo. Bird Grinnell. *Ibid.*, May 24, pp. 348-349; May 31, pp. 368-369. — An annotated list of 74 species noted during October and November in northern Montana.
1708. *Familiarity of the Gray Jay*. By W. B. Mershon. *Ibid.*, June 21, p. 432. — *Perisoreus canadensis*.
1709. *Jay, Pigeon, Camera*. By Ebeemee. *Ibid.*, June 28, p. 452. — *Perisoreus canadensis* and *Ectopistes migratorius*.
1710. *Grouse in Captivity*. By Jay Beebe. *Ibid.*, p. 453. — *Bonasa umbellus*.
1711. *Plumage of the Mallard*. By J. L. Rooney. *Ibid.*
1712. *The Loon in Captivity*. By Edward Jack. *Ibid.*, July 12, p. 491.
1713. *The Names of Game Birds*. *Ibid.*, Vol. XXXI, Aug. 2, 1888, p. 24; Aug. 16, p. 65. — Review of Trumbull's 'Names and Portraits of Birds which Interest Gunners.'
1714. *Interesting Bird Notes*. By J. L. Davison. *Ibid.*, p. 63.
1715. *The Domestication of Wild Fowl*. By Fred. Mather. *Ibid.*, Aug. 23, p. 83.
1716. *Shore Birds*. By X. Y. Z. *Ibid.*, p. 85. — At Ipswich, Mass., in August.
1717. *The Pileated Woodpecker*. By Coahoma [=F. G. Dabney]. *Ibid.*, Sept. 6, p. 122.
1718. *Golden Plover*. By F. *Ibid.*, Sept. 13, p. 145. — Large flights on Long Island.

1719. *The Foot of the Wood Duck*. By Fred. Mather. *Ibid.*, Oct. 4, p. 205. — Climbing powers of the young.
1720. *A Captive Grouse*. By J. B. Battelle. *Ibid.*, Oct. 25, p. 264. — *Bonasa umbellus*.
1721. *Economic Ornithology*. *Ibid.*, Nov. 1, p. 284. — Review of 'Report of the Ornithologist and Mammalogist [of the Department of Agriculture] for 1887.'
1722. *A Ruffed Grouse in Town*. By Henry J. Thayer. *Ibid.*, p. 285. — In Cambridge, Mass.
1723. *Failure of the Woodcock Flight*. By E. H. Lathrop. *Ibid.*, p. 286. — See also Nos. 1725 and 1727.
1724. *Game in Town*. By von W., J. G. L., J. L. Davison, Blue Ridge, E. T. Johnson and Hub. *Ibid.*, Nov. 15, p. 323; Dec. 13, p. 408; Dec. 20, p. 435. — *Bonasa umbellus*, *Colinus virginianus* and *Philohela minor*.
1725. *The Woodcock Flight*. By E. H. Lathrop. *Ibid.*, p. 326.
1726. *Notes from Missouri*. By J. B. *Ibid.*, Nov. 22, p. 343.
1727. *The Woodcock Supply*. By N. A. Plummer, Notliks, A. B. C., Alfred A. Fraser, Whitt., Sandpiper, H. B. N., C. B., *et al.* *Ibid.*, p. 345; Nov. 29, p. 367; Dec. 13, p. 411; Dec. 27, p. 458.
1728. *The Annual Meeting of the A. O. U.* *Ibid.*, Nov. 29, p. 363.
1729. *Destruction in Migration*. By Ruthven Deane. *Ibid.*, Dec. 6, p. 385. — Near Chicago and Racine in May, 1888.
1730. *Turkey Buzzards and Cowbirds*. By Coahoma [=F. G. Dabney]. *Ibid.*, Dec. 13, p. 407.
1731. *Range of the Wild Turkey*. By Charles F. Batchelder. *Ibid.*
1732. *Notes on New Mexican Shrikes*. By R. W. Shufeldt. *Ibid.* *Lanius borealis* and *L. l. excubitorides*.
1733. *Chestnut Ruffed Grouse*. By F. W. *Ibid.*, p. 408. — Individual variation in *Bonasa umbellus*.
1734. *Owl and Man*. By C. H. Ames. *Ibid.*, Dec. 20, p. 435. — A man attacked by a large Owl.
1735. *Nesting of Leach's Petrel*. By F. H. Carpenter. *Ibid.*, p. 436.
1736. *Massachusetts Killdeer Plover*. By Hub. *Ibid.*, p. 437.
1737. *An Interesting Hybrid*. *Ibid.*, Dec. 27, p. 455. — From the 'Evening Mercury,' St. Johns, N. F. A supposed hybrid between the Blackcock and the Ptarmigan.
1738. *Grasshoppers and Hawks*. By Dr. C. Hart Merriam. *Ibid.*, pp. 455-456. — Great numbers of grasshoppers caught by Hawks, especially *Buteo swainsoni*.
1739. *Mississippi Valley Bird Migration*. *Ibid.*, Jan. 3, 1889, p. 475. — Review of Bulletin No. 2 of the Division of Economic Ornithology, Department of Agriculture.
1740. *Facksnipe in January*. By G. C. P. *Ibid.*, Jan. 17, p. 515. — *Gallinago delicata* (?) at Granville, Ohio.
1741. *Shore Birds of Central New York*. By Morris M. Green. *Ibid.*, Vol. XXXII, Jan. 31, 1889, p. 22. — 34 species recorded.

1742. *Pennsylvania Birds*. *Ibid.*, p. 22. — Review of B. H. Warren's 'Report on the Birds of Pennsylvania.'
1743. *Want of Foresight*. By A. H. G. *Ibid.* — On the absence of various winter birds at Scarborough, N. Y.
1744. *Golden winged Woodpecker in Massachusetts*. By Hermit. *Ibid.*, Feb. 14, p. 63. — Food in winter.
1745. *Winter Woodpeckers of Michigan*. By E. L. Moseley. *Ibid.*
1746. *Habits of the Flicker*. By C. W. Chamberlain. *Ibid.*, Feb. 28, p. 107.
1747. *The Jekyl Island Pheasants*. Editorial. *Ibid.*, March 7, p. 129. — Propagation of Pheasants at Jekyl Island, Georgia. See also pp. 169 and 355, and Vol. XXXIII, Aug. 22, 1889, p. 81.
1748. *Midwinter Bird Notes*. By Shoshone. *Ibid.*, March 7, p. 131. — Notes on migration at Kearney, Neb.
1749. *Hummingbird on the Ground*. By Chas H. Eldon. *Ibid.* — *Trochilus colubris* alighting on the ground.
1750. *Crows and Poison Ivy*. By W. B. Barrows. *Ibid.*, March 14, p. 151. — Scattering the seed.
1751. *Ways of the Woodpecker*. By Fannie Heatherington. *Ibid.*
1752. *Woodcock Breeding in North Carolina*. *Ibid.* — From the 'Wilmington (N. C.) Daily Star.'
1753. *Five Days a Savage*. By Edward Howe Forbush. *Ibid.*, March 21, p. 171; March 28, p. 191; April 4, p. 211; May 2, pp. 294-295; May 9, pp. 314-315. — Notes on various birds in the Gulf of Georgia, B. C.
1754. *A Grouse Trajectory*. By Jay Beebe. *Ibid.*, April 4, p. 212. — Flight of a Ruffed Grouse.
1755. *Bird Notes from Maryland*. By M. G. Ellzey, M. D. *Ibid.* — In winter and early spring.
1756. *Honkings from the Platte*. By Shoshone. *Ibid.* — On migration of Geese and a few other birds in Nebraska.
1757. *The Migration of the Ducks*. By Shoshone. *Ibid.*, April 18, p. 256. — Interesting notes on Ducks and Geese in Nebraska.
1758. *Questions about Chimney Swifts*. By W. E. Saunders. *Ibid.*, May 2, p. 295. — Migration.
1759. *Migrations on the Plains*. By Shoshone. *Ibid.* — Chiefly water birds about Kearney, Neb.
1760. *Range of the Wild Turkey*. By Sullivan Cook. *Ibid.*
1761. *Whistling Swan in Niagara County, N. Y.* By J. L. Davison. *Ibid.*
1762. *Nests of the Great Horned Owl*. By O. B. H. *Ibid.*, May 9, p. 315.
1763. *Domesticated Wild Geese*. By J. L. Davison. *Ibid.* — *Branta canadensis*.
1764. *A Captive Robin*. By Robt. B. Lawrence. *Ibid.*, p. 316.
1765. *Florida Birds of Plume*. Editorial. *Ibid.*
1766. *Brant in Michigan*. By Robert B. Lawrence. *Ibid.* — *Branta bernicla*.

1767. *Spring in New Brunswick*. By Edward Jack. *Ibid.*, p. 317.—*Branta canadensis*.
1768. *British Columbia Notes*. By Stanstead. *Ibid.*, May 23, p. 355.—*Dendragapus obscurus fuliginosus*.
1769. *Massachusetts Bird Notes*. By F. C. Browne. *Ibid.*—Species noted near Framingham, May 12.
1770. *Brant Shooting at Cape Cod*. By W. Hapgood. *Ibid.*, May 30, p. 377.—*Branta bernicla*.
1771. *Nesting Habits of Hawks*. By Walter C. Wood. *Ibid.*, June 13, p. 420.—Especially *Buteo lineatus*.
1772. *Spring Notes on Migratory Birds*. By Robert Ridgway. *Ibid.*—At Laurel, Md.
1773. *Chimney Swallows*. By J. S. C. *Ibid.*—Migrations.
1774. *Ruffed Grouse's Nest with Fifteen Eggs*. *Ibid.*, p. 421.—From the 'Worcester [Mass.] Spy.'
1775. *Long Island Birds*. By Wm. Dutcher. *Ibid.*, June 20, p. 444.—A request for information.
1776. *To Pennsylvania Ornithologists*. By B. H. Warren. *Ibid.*, p. 445.—A request for information.
1777. *The Contradictory Crow*. Editorial. *Ibid.*, June 27, p. 465.—Notice of investigations by the Department of Agriculture as to the Crow's beneficial and injurious qualities.
1778. *Economic Ornithology*. Editorial. *Ibid.*, July 4, p. 489.—Notice of the annual report of the Department of Agriculture.
1779. *North American Birds*. Editorial. *Ibid.*—Notice of H. Nehrling's 'North American Birds.'
1780. *Range of the Turkey Buzzard*. By J. A. Loring. *Ibid.*, p. 490.—At Owego, N. Y.
1781. *The Woodcock's Whistle*. By H. B. N. *Ibid.*, July 11, p. 510.
1782. *Outdoor Notes from Louisiana*. By H. P. U[fford]. *Ibid.*, July 18, p. 528.—*Ardea cærulea*.
1783. *The Sparrow Pest*. By Jacobstaff. *Ibid.*—*Passer domesticus*.
1784. *Ruffed Grouse Eggs*. By John Williams. *Ibid.*—Notes on number of eggs and period of incubation of *Bonasa umbellus* and *Colinus virginianus*.
1785. *A Study of Woodcock*. By Paul Pastnor. *Ibid.*, pp. 528-529.
1786. *Can the Nuisance be Abated?* Editorial. *Ibid.*, Vol. XXXIII, July 25, 1889, p. 1.—*Passer domesticus*.
1787. *Ways of the Woodcock*. Editorial. *Ibid.*, Aug. 1, p. 21.—Interesting observations about feeding habits and notes.
1788. *The Woodcock and the Worm*. By E. B. and William Brewster. *Ibid.*, p. 24.—Mr. Brewster's article is an important contribution to our knowledge of the Woodcock's habits.
1789. *A Hard Time of It*. By A. H. G. *Ibid.*, Aug. 8, p. 43.—An item about *Turdus mustelinus*.
1790. *Notes on the Woodcock*. By Canonicus. *Ibid.*, pp. 44-45.
1791. *The Woodcock's Whistle*. By Robert T. Morris. *Ibid.*, Aug. 15, p. 65.

1792. *The Loon's Flight*. By Caryl D. Haskins. *Ibid.*
1793. [*The Woodcock and the worm.*] Editorial. *Ibid.*, Aug. 22, p. 81.
1794. *The Woodcock's Whistle*. By William Brewster and W. *Ibid.*, p. 83.
1795. *Bird Notes from Missouri*. By Jasper Blines. *Ibid.*—Mention of *Mimus polyglottos*, *Harporhynchus rufus* and *Galeoscoptes carolinensis*.
1796. *The Plumed Quail of Arizona*. By T. W. B. *Ibid.*, pp. 84-85. —*Callipepla gambeli* (?).
1797. *Grouse Reared in Confinement*. Editorial. *Ibid.*, p. 85.—*Bonasa umbellus togata*.
1798. *The Woodcock's Whistle*. By H. B. N. *Ibid.*, Aug. 29, p. 104.
1799. *The Grouse of Utah*. By Geo. H. Wyman. *Ibid.*
1800. *The Woodcock's Whistle*. By H. B. Soule and F. W. *Ibid.*, Sept. 5, p. 123.
1801. *Quail in Dixie*. By Geo. H. Wyman. *Ibid.*—In Utah.
1802. *Range of the Wild Turkey*. By Chas. Hallock. *Ibid.*, p. 124.
1803. *Wild Pigeons*. By Geo. A. Boardman. *Ibid.*—Near Calais, Maine.
1804. *The Whistle of the Woodcock*. By C[harles] H[inkle] and Canonius. *Ibid.*, Sept. 12, p. 143.
1805. *Birds of Niagara County, N. Y.* By J. L. Davison. *Ibid.*, Sept. 19, p. 164; Sept. 26, p. 183; Nov. 7, p. 303.—190 species are given, with brief annotations.
1806. *Massachusetts Wild Turkeys*. By A. C. Sikes. *Ibid.*, Sept. 19, p. 167.
1807. *Mockingbirds in Massachusetts*. By E. H. Lathrop. *Ibid.*, Oct. 3, p. 202.
1808. *Michigan Wild Turkeys*. By S. C. *Ibid.*, p. 205.
1809. *Birds of Plume*. *Ibid.*, Oct. 10, p. 224.—From the 'Mobile Register.' "10,000 Terns and other birds of plume" shipped to New York.
1810. *Hawk Migration*. By R. G. M. *Ibid.*, p. 225.
1811. *Wild Pigeon in Massachusetts*. By C. E. I. *Ibid.*, Oct. 17, p. 243.
1812. *The Woodcock's Whistle*. By Marstrand. *Ibid.*—*Scolopax rusticola*.
1813. *The Wild Pigeon*. Editorial. *Ibid.*, Oct. 24, p. 261.—Notes the occurrence of "many" in Prince George's County, Md.
1814. "In a Garden." By Coahoma [=F. G. Dabney]. *Ibid.*, p. 265.—A fight between two *Trochilus colubris*.
1815. *The Wiles of a Mother Teal*. By Rex. *Ibid.*—*Anas discors*.
1816. *Waders in Sandusky Bay*. By Dr. E. Sterling. *Ibid.*—*Limosa fedoa*, *Macrorhamphus griseus*, *Micropalama himantopus*.
1817. *New England Grouse*. By Special. *Ibid.*, p. 267.—*Bonasa umbellus* and *B. u. togata*.
1818. *Out-of-door Papers. From My Window*. By Fannie Pearson Hardy. *Ibid.*, Oct. 31, p. 283.—Notes on several species in [Northampton (?)] Mass.

1819. *Food of California Birds*. By Walter E. Bryant, Charles A. Keeler, Harry R. Taylor. *Ibid.*—A request for material and observations bearing on the subject.
1820. *Wild Pigeon in Massachusetts*. By H. J. Thayer. *Ibid.*, p. 288. —A pair said to have nested in Plymouth, Mass., in 1889.
1821. *Woodcock in Town*. By S. E., Duplex, and H. J. G. *Ibid.*, Nov. 7, p. 302; Nov. 14, p. 324.
1822. *A Tame Wild Duck*. By H. C. Newell. *Ibid.*, Nov. 7, p. 303. —*Anas obscura*.
1823. *Migration of Ducks*. By J. W. C. *Ibid.*—*Oidemia deglandi* in Buzzard's Bay and Vineyard Sound.
1824. *Out-of-door Papers. A Question of Taste*. By Fannie Pearson Hardy. *Ibid.*, Nov. 14, p. 323. —On food habits of *Sphyrapicus varius*, *Merula migratoria*, *Carpodacus purpureus* and *Pinicola enucleator*. 118
1825. *Wild Turkeys in New England*. By C. H. Ames. *Ibid.*, p. 325.
1826. *Annual Congress of the A. O. U.* *Ibid.*, Nov. 21, pp. 343-344. —A detailed narrative of the seventh congress of the Union.
1827. *A Tamed Ruffed Grouse*. By E. M. Stillwell. *Ibid.*, p. 344.
1828. *Wild Turkeys in New England*. By Milton P. Peirce. *Ibid.*, p. 346. —Reports of their occurrence about Mt. Tom and Mt. Holyoke in Massachusetts thirty years ago.
1829. *Bears, Birds and Fishes*. By T. H. B[ean?]. *Ibid.*, p. 348.
1830. *Gunning down by the Sea*. By James M. Scovel. *Ibid.*, Nov. 28, pp. 362-363. —Contains some notes on nesting of *Pandion haliaetus carolinensis*.
1831. *Out-of-door Papers. Winter Fishing*. By Fannie Pearson Hardy. *Ibid.*, p. 363. —Notes on a few winter birds in Maine, especially *Parus atricapillus*.
1832. *Game in Town*. By C. G., Milton P. Peirce and Medicus. *Ibid.*, p. 364. —Notes on *Bonasa umbellus*, *Colinus virginianus*, and *Melanerpes erythrocephalus*.
1833. *Rare Birds in Rhode Island*. By Newton Dexter. *Ibid.* —*Grus canadensis* and *Ionornis martinica*.
1834. *Ruffed Grouse Plumage*. By G. W. Z. *Ibid.*
1835. *The Snowy Owl in New Jersey in November, 1889*. By L. S. Foster. *Ibid.*
1836. *Snowy Owl in Pennsylvania*. By W. K. P. *Ibid.*
1837. *Notes on the Snowy Owl*. By Osceola. *Ibid.*, Dec. 5, p. 384.
1838. *Snowy Owls in Maine*. By W. D. U. *Ibid.*
1839. *Weight of Grouse*. By Rudolph von Ohl. *Ibid.*, Dec. 12, p. 402. —*Bonasa umbellus* and *Colinus virginianus*.
1840. *Snowy Owl in Massachusetts*. By C. W. C[hamberlain?]. *Ibid.*, p. 405.
1841. *Snowy Owl in Connecticut*. By John H. Sage. *Ibid.*
1842. *Grouse Notes*. By Jay Beebe. *Ibid.*, Dec. 19, p. 422. —*Bonasa umbellus*.
1843. *A December Robin's Nest*. By A. C. Kirkpatrick. *Ibid.*
1844. *Weight of Grouse*. By Robert T. Morris, M. D. *Ibid.*, p. 433. —*Bonasa umbellus*.

1845. *A Tame Snipe*. By Wm. Schott. *Ibid.*, Dec. 26, p. 449. — *Arenaria interpres*.
1846. *The Snowy Owl*. By L. S. Foster, C. P. Hubbard, and H. *Ibid.*
1847. *Great Gray Owl in New York*. By O. Stewart Bamber, M. D. *Ibid.*
1848. *Weight of Grouse*. By Noltiks. *Ibid.*, Jan. 2, 1890, p. 467. — *Bonasa umbellus*.
1849. *A Wild Pigeon Flight*. By Keouk. *Ibid.*
1850. *The Ways of the Woodcock*. By T. M. Aldrich. *Ibid.*, pp. 468-469. — An article of great interest.
1851. *The Chinese Pheasants*. By J. F. L. *Ibid.*, p. 471.
1852. *Hawks that Kill Hens*. By M. G. Ellzey, M.D. *Ibid.*, Jan. 9, p. 497. — Contains notes on *Buteo latissimus*, *B. borealis*, *Archibuteo lagopus sancti-johannis*, *Circus hudsonius*, and *Colinus virginianus*.
1853. *Snowy Heron on Lake Ontario*. By E. E. Chapman. *Ibid.*
1854. *Cape Cod Quail*. By J. C. C[ahoon]. *Ibid.*, p. 498.
1855. *The Snowy Owl*. By Shoshone and S. C. Clarke. *Ibid.*, Jan. 16, p. 511.
1856. *El Carpintero*. By Arefar. *Ibid.*, p. 512. — *Melanerpes formicivorus bairdi*.
1857. *An Albino Hairy Woodpecker*. *Ibid.*
1858. *Game Birds of the Plains*. By Shoshone. *Ibid.*, pp. 513-514. — Includes a list of 'game birds' near Kearney, Nebraska, chiefly Waders and Ducks.
1859. *Weight of Grouse*. By Sus. Q. Hannah. *Ibid.*, p. 515.
1860. *Out-of-door Papers*. IX.—*Largely Personal*. By Fannie Pearson Hardy. *Ibid.*, Vol. XXXIV, Jan. 23, 1890, p. 4. — Contains notes on *Bubo virginianus* and *Nyctala acadica*.
1861. *Grouse in Confinement*. By G. Jaye and W. D. L. *Ibid.*
1862. *Snowy Owls*. By T. F. C. and J. Y. C. *Ibid.*, Jan. 30, p. 23.
1863. *Food of Quail*. By C. T. *Ibid.*, p. 27. — Seeds of skunk cabbage.
1864. *Wingless Birds of New Zealand*. By Edward Wakefield. *Ibid.*, Feb. 6, p. 44.
1865. *Evening Grosbeak in New England*. By William Brewster. *Ibid.*, pp. 44-45.
1866. *Evening Grosbeak in Central Ontario*. By John Ewart. *Ibid.*, p. 45.
1867. *The Snowy Owl*. By A. H. P. *Ibid.*
1868. *Notes on Pennsylvania Birds*. By B. H. Warren. *Ibid.*, Feb. 13, p. 64. — *Pinicola enucleator*, *Plectrophenax nivalis*, *Calcarius lapponicus*.
1869. *Evening Grosbeak in New York*. By A. K. Fisher and J. Alden Loring. *Ibid.*, pp. 64-65.
1870. *Evening Grosbeak in Western New York*. By J. L. Davison. *Ibid.*, p. 65.
1871. *The First Wild Geese of the Season*. By J. L. Davison. *Ibid.*

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GENERAL NOTES.

The Little Black Rail (*Porzana jamaicensis*) at Key West, Florida. — Mr. John W. Atkins secured on March 11, 1890, an adult male of this species which he kindly gave to me. The bird in question was caught on one of the principal and most frequented wharves of the water front of the city. It was evidently migrating, and had but just arrived at the point in question in a very fatigued condition, and was observed by a passer by, trying to hide among some loosely piled brick. This person secured it easily and brought it to Mr. Atkins alive. So far as I am aware this is the first absolute record of the occurrence of this species on the Island of Key West.—W. E. D. SCOTT, *New York City*.

The Dowitcher at Ottawa.—On May 9, 1890, I shot a female *Macrorhamphus griseus* feeding in a moist meadow within a mile of this city. It is now in my collection.—GEO. R. WHITE, *Ottawa, Ontario*.

The American Barn Owl near Troy, New York. — In my collection is a specimen of *Strix pratricula* in rather dark plumage, lately received from Mr. A. E. Weinbender of West Troy, who informed me that he shot the Owl November 19, 1888, in a clump of poplar trees, where it had just been mobbed by Crows, on Weinbender's Hill, about one mile west of the Hudson River at Troy, N. Y.—AUSTIN F. PARK, *Troy, N. Y.*

Strix pratricula in Western New York. — On July 5, 1890, a live Barn Owl was captured in Buffalo in the warehouse of a large tannery close to the New York Central R. R. Station. The bird had probably entered the building during the preceding night through an open window, and failing to find the same means of exit was captured in the morning. It was a fine full-plumed male. It was kept by its captor for a number of days before it came into my possession. It is interesting to note that the few days preceding the bird's capture were very hot, and that the nights were also warm. I know of only one previous record of the capture of this Owl in Erie County, and of but few elsewhere in this region.—W. H. BERGTOLD, M. D., *Buffalo*.

A Correction.—In the current volume of 'The Auk,' page 91, Dr. R. W. Shufeldt records the capture of the Hawk Owl near Washington, D. C. The undersigned called at the studio of Mr. F. S. Webster to see the specimen, and found it to be a Short-eared Owl (*Asio accipitrinus*) instead of the above named species.—A. K. FISHER, *Washington, D. C.*

Breeding of the Pileated Woodpecker in Worcester County, Massachusetts:—In a recent paper* I noticed the fact that a few Pileated Wood-

* Notes on the Birds of Winchendon, Worcester Co., Mass. 'The Auk,' Vol. V No. 4, Oct. 1888, pp. 386-393.

peckers still linger in the northern part of Worcester County, Mass., and that a brood of young was seen there in the summer of 1887. Any doubt that may have existed as to whether these birds really breed in this region is now dispelled, for Mr. C. E. Bailey has sent me a set of four eggs which he took at Winchendon, May 17, 1890. The nest was about forty feet above the ground in a dead hemlock fully three feet through at the base and over seventy feet in height. Some photographs taken for me under Mr. Bailey's direction show that the tree stood in an opening surrounded by a dense forest of spruces. One of the Woodpeckers, sufficiently large and distinct to be easily identified with the aid of a magnifying glass, appears clinging to the trunk a few feet from the entrance to its nest. This opening, according to Mr. Bailey's description, was of sufficient size to admit the hand and arm, so that no preliminary cutting was necessary in order to reach the eggs.

When the nest was first discovered both birds were in it together, but on the following day when the eggs were taken the male was away, and did not appear until his home was invaded. He watched the movements of the enemy from a safe distance, relieving his mind, meanwhile, by "talking a good deal." The female parent, on the contrary, showed marked devotion to her eggs. After being again and again driven from the nest by violent pounding at the base of the tree, she would quickly return; and even after the eggs were removed she entered the nest and remained within for some time, peeping out every now and then as if seeking some trace of her lost treasures.

After the nest was robbed, the pair disappeared for a few days, but returned about July 1, and a week or so later (I have been unable to obtain the exact date and particulars) Mr. Bailey took a second set of four eggs from the same hole.

In the eggs of the first set incubation had progressed several days, showing that probably the full number had been laid. They measured respectively: 1.34×1.00 , 1.28×1.00 , 1.27×1.00 , and $1.22 \times .97$ inch. In shape they are full, somewhat elliptical ovate. Save that they are larger and have an even higher polish, they closely resemble the eggs of *Colaptes*, showing the same conspicuous pits or pores.—WILLIAM BREWSTER, Cambridge, Mass.

Melanerpes aurifrons in Young Co., Texas, in 1878.—In 'The Auk' for July, 1889 (Vol. VI, p. 238) Mr. E. M. Hasbrouck notes the northern limit of range of *Melanerpes aurifrons*. It would appear from the following extract from 'Science News' of Sept. 13, 1879, that the range of the species was considerably farther north than Eastland County in 1878.

"I have had an opportunity of noting the eastern and northern limit of the Yellow-faced Woodpecker of Texas and have found it to range considerably further north than I expected. This species first attracted my attention between Austin and San Antonio, in Comal County, and about two hundred miles from the Rio Grande. West of San Antonio it became more plentiful and seemed to be inspecting the cedar telegraph poles, with

a view to nest-building. Those poles being longer and larger than the mesquite timber, which abounds along the road from San Antonio to Castroville in Medina County, seem to offer better facilities for nesting than the small short trunks of the mesquite. From Medina County we traced the species northeasterly to the Colorado River, in San Daba County, about one hundred and fifty miles. From this point to Gainesville, Texas, some two hundred miles northeast, we did not encounter the species, and there seems to be a narrow belt of neutral land between the eastern range of the Yellow-faced Woodpecker and the western limit of its near relative, the Red-bellied Woodpecker.

"During the fall of the same year (1878) I started from Gainesville, Texas, and traveled a little south of west, and was surprised to find the species on the Brazos River, so far north. Traveling westward, we seemed to pass beyond the bird, as we did not see it in Taylor and Nolan Counties at all.

"On our return we noted the species again in the vicinity of the Brazos River still above where we crossed that river going out and near Fort Belknap. At this point it is only about forty miles from Red River; and the bird may be looked for on that stream, although Lieutenant McCauley does not mention it in his notes on the birds of the upper Red River.—*G. H. Ragsdale, Gainesville, Texas, Aug. 1, '79.*"

Eastland County lies south of $32^{\circ} 30'$ while Belknap is north of 33° .—*G. H. RAGSDALE, Gainesville, Texas.*

Notes on *Eugenes fulgens*.—This Hummingbird is a summer resident in the Huachuca Mts., Arizona. It arrives in May, but is nowhere plentiful until the mesal shrubs begin to blossom, about the middle of June. From this time on during the entire summer one may observe on almost any hillside below the pine belt large clusters of bright red or yellow flowers spreading out from stalks ten or fifteen feet high. There are many varieties of this plant and all are favorite feeding resorts of the Rivoli Hummer. I have shot as many as a dozen in a day simply by sitting down and watching for them to come and feed. It is necessary to select a well-matured plant, and at the proper elevation, as well as in good surroundings of spruce pines. While feeding, these birds range from 4,500 to 8,000 feet altitude or up to the pine belt, their favorite grounds being where the pines end on the downward slope. Their flight is exceedingly rapid at times but they often fly slowly so that the wings can be easily seen during the beats. The noise made by this bird's wings during a rapid flight is not like the buzzing of the small Hummer's wings, the beats being more slow and distinct, without any buzzing noise.

Their note is a twittering sound, louder, not so shrill, and uttered more slowly than those of the small Hummers.

From July 5 to 9 I examined nine females; one had already laid and the others contained eggs that would probably have been laid within from one to four days. On July 10 my search for the nest was at last rewarded. The country I had explored was from 7,500 to 10,000 feet elevation,

where a dense growth of tall spruce pines covers the hillsides. These pines are all more or less covered with bunches of moss and lichens. I was resting on a rock in the cool shade beneath one of these trees when I was suddenly attracted by the noise of a Hummer's wings close to my head. Looking up, I saw a female Rivoli making perpendicular dives at me. After repeating this until I had moved off a sufficient distance, she alighted upon a small dead twig and there sat watching me for some moments. As all remained quiet, she now flew about the tree slowly, and when about fifty feet up made a rapid dart to the crotch of a mossy limb about ten feet from the trunk, where the nest was built, nearly hidden from the ground. I now came up, and by throwing things at her flushed her off the nest, but she at once returned to it. After much trouble the nest and the two eggs it contained were secured in safety.

The nest was firmly attached to the limb just beyond a crotch, the limb at the nest being about an inch in diameter. It is of a uniform oval shape, its diameter outside being from 2.03 to 2.62 inches; inside from 1.20 to 1.45. The depth outside is 1.55 inches; inside it is .62. It is composed outwardly of bits of fine moss and lichens, and is indistinguishable from the limbs about it. It is well lined on the inside with many star-shaped downy seeds of a delicate cream color, similar to those of the common thistle of the East, but smaller and softer. The two eggs are pure white, shaped alike at both ends, and measure .53 \times .37 and .52 \times .37 inch.—OTHO C. POLING, *Ft. Huachuca, Arizona*.

The Philadelphia Vireo in Vermont.—Although the distribution of the Philadelphia Vireo (*Vireo philadelphicus*) leads one to expect its regular occurrence in Vermont, I find no record of its capture in that State. It may therefore be of interest to mention that on September 11, 1889, I took a female of this species at Pittsford, Rutland County, Vermont. I found the bird among some low alders which overhung a meadow brook.—FRANK H. HITCHCOCK, *Somerville, Mass.*

Spotted Eggs of Swainson's Warbler.—On May 13 of this year I found a nest of Swainson's Warbler in Coosawhatchie Swamp,—which is a very large river-swamp about five miles from Yemassee. Upon looking into the nest I found a single egg, and was very much surprised to see that it was distinctly marked over the whole of the egg. I left the nest with the egg to get the full set, and returned on the 15th and found the bird sitting. The nest contained three eggs which were all spotted. As these are the first eggs of Swainson's Warbler which are distinctly spotted, a description will doubtless be of interest.

I sent these eggs with the nest to Capt. Bendire, and at my request Mr. Ridgway has kindly described the eggs and I herewith give his description.

"The two eggs measure, respectively, as follows:— .83 \times .59, .85 \times .60 inch. One of them, being broken, cannot be measured. The ground color of the eggs is yellowish or buffy white; one of them is very faintly and rather sparsely flecked, chiefly on and near the larger end, with pale

buffy brown; the other two are distinctly flecked with reddish brown or cinnamon-color, these markings most numerous, and in one egg most distinct, on the larger end."

The nest was built in canes, six and a half feet from the ground, and over running water, and is typical of a Swainson's nest.

After taking the nest and eggs I would not shoot the birds as I hoped I could get another set of eggs from them. I accordingly visited the same swamp again on May 26, and after an hour's careful search I found the nest, with the bird sitting. I actually had my hand on her before she left the nest. The eggs—three, as in the first nest—are all spotted, much more so than the first set. They are all marked with reddish brown, upon a buffy white ground, though in one egg the ground color seems to be a little lighter than in the others, and it is not as heavily marked. The nest was built in canes, but was placed only three feet from the ground and in a comparatively dry situation.

Mr. Brewster has described a set of three eggs of this Warbler which were taken by me. (See *Auk*, Vol. II, No. 4, 1885.) He says: "One is perfectly plain; another, like the larger egg of the first set, has two or three minute specks which may be genuine shell markings; while the third is unmistakably spotted and blotched with pale lilac."—ARTHUR T. WAYNE, *Remassee, S. C.*

Helminthophila chrysoptera in Manitoba.—By the kindness of Mr. William Hine of Winnipeg, Manitoba, I am enabled to record the capture of a Golden-winged Warbler taken by him near Winnipeg on or about May 24, 1887. Two years ago in Winnipeg Mr. Hine showed me the specimen, which he had mounted. It was an adult male in full plumage. This capture is an interesting one, for although the Golden-winged Warbler is well known to breed in some parts of Wisconsin and Minnesota, Winnipeg is some three or four hundred miles beyond its known range.—C. F. BATCHELDER, *Cambridge, Mass.*

Was He a Philanthropist?—On the fourth of July, when in the woods looking for the nest of a Black-throated Blue Warbler, my attention was diverted by a Chestnut-sided Warbler. He came hunting over the bushes near me, once flying so low that I caught his image among the waving reflections of the sunlit saplings in the pool at my feet. I traced him to a nest, and was rejoicing over the discovery when, on walking nearer, I was thrown into perplexity by seeing a female Redstart come to feed the young. What could it mean? I dared not believe my eyes. Perhaps, in moving to a better position, I had lost my Chestnut's nest and come upon a Redstart's. Or—could such strange things be? Before I had time to get over my bewilderment, back flew the Chestnut again, feeding the babies as calmly as if to assure me that such things were, whether from precedent or the premises of ornithologists they could be or could not be.

I signalled excitedly to Mrs. Olive Thorne Miller, who was watching

for the Blue Warbler a few rods away, and we seated ourselves about fifteen feet from the tree, determined to see everything that happened. The nest was in a small beech, about thirty feet from the ground, in a crotch made by a short, dead branch with the trunk. It seemed to be a compact, typical Redstart nest, though placed higher than usual—it certainly had nothing to suggest a Chestnut-sided Warbler's nest. It was in such plain view from where we sat that, through our glasses, we could see the fuzz on the heads of the little ones, and see the larger of the two scratch his bill, stroke his feathers, stand up in the nest, and stretch his wing over the edge. When the sun lit up the leaves and the nest in their midst, we could see into the throats of the hungry babies. When the old birds fed them, I saw the yellow patches on the tail of the Redstart as she darted around the nest, and the white breast and yellow crown of the Chestnut-sided Warbler. And in hunting, the Chestnut came within six feet of us, so that we could see the deep chestnut of his sides and the heavy black markings of his cheeks. We watched the birds closely for an hour or more in the morning, two hours in the afternoon, and for a short time just before dark; and each time saw the same singular performance.

The birds fed the young at dangerously short intervals—we feared they would leave the nest dyspeptics for life! And they would have been crammed still more, if it had not been for the time it took the Redstart to drive off the Chestnut, and the delay her attacks caused him; for she had no wish for his kind offices and, as Mrs. Miller remarked, like some other philanthropists that made no difference to him! When she saw him coming with food, before he was anywhere near the tree, she dashed at him with spread tail and resentment in every feather. His long-suffering meekness was philosophical. He flew before her, waited till she had spent her anger and gone off or down in the bushes for an insect, when he slipped up to the nest and fed his charges. It seemed as if she could not bear the sight of him. Again and again she drove him out of the tree, and sometimes she almost tumbled her babies out of the nest, flouncing at him over their heads when he was in the act of feeding them. Once or twice he came to a twig behind the nest, leaned over, and stretched the food across to the birds, as if to make sure of getting off before she caught him. But he was no coward, and took a good claw-to-claw tumble with her when she had snapped her bill at him once too often. Except for this, he seemed calm and self-possessed through all her persecution, hopping from twig to twig, running along the branches, clambering up the stalks of the bushes, and occasionally giving a thin low call; while she flashed around madly, under leaves and over branches, flying up against one tree-trunk only to dart off to another. At first she made no noise, except when she snapped her bill, but later on she sang a few notes now and then while at her work.

On the morning of the fifth, we found that one of the young had flown, and the other one was out on a branch by the side of the nest. Mrs. Miller watched the family while I went to look up some noisy Ovenbirds,

and she thought the Chestnut lost track of the bird when it flew to another branch, for he watched where the Redstart went and tried to follow her. After he had been driven back a number of times, he apparently gave up, and disappeared. I came back in time to see the little one go to the ground and caught it and held it, though its poor mother trailed pitifully, while Mrs. Miller took notes on its plumage. She found that it was ashy on the back and darker on the head; that its throat and breast were ashy, turning to white below. The sides of its breast were slightly washed with yellow, and there were two yellow wing-bars. The beak was light colored, a little darker above than below. The tail was too short to show any color.

Whether the Chestnut succeeded in following the family after they left the nest, or gave up, discouraged in well doing, we did not determine. We saw the Redstart hunting about in the vicinity of the dead treetop where she took her young, the day after it left the nest, but saw no more of the Chestnut with her. A thousand theories suggest themselves in explanation of this domestic comedy, but of course it is too late to prove any of them. The only thing we felt justified in concluding from the position and character of the nest and the actions of the birds, is that the Redstart rather than the Chestnut-sided Warbler was the original owner of the nest.

On July 23 Mrs. Miller and I were near the dead treetop watching the family of Black-throated Blue Warblers whose nest we had been looking for when we came on the scene of coöperative housekeeping nearly three weeks before. As we were going on, I caught sight of a Chestnut-sided Warbler, and, as it was the first time I had seen one there since the nest had been left, I stopped involuntarily, half conscious of a hope that I might see more strange sights. The Chestnut went to the ground and following him with my glass, under the jewel weed, I saw a big grayish bird looking for food. In a moment it fluttered its wings and opened its bill and — was fed by the Chestnut! I was dumbfounded. Surely, wonders never cease!

It flew up into the trees after him and chirped as peremptorily as if the Chestnut had always got its meals for it. It was an odd sight to see the little Warbler chasing round for the big baby! He seemed very hard-worked, for besides having a larger capacity than the poor Chestnut was used to, the young bird had full use of its wings and was rarely found twice on the same branch, so that the little old gentleman had to whisk round for flies and for his adopted son too.

The young bird kept so high and clambered over the branches so nimbly, that we had much ado to make out its markings, but found enough to show that it was neither Chestnut-sided Warbler nor Redstart. When on the ground under the weeds its gray back seemed to have an olivaceous tinge; and when it flew up we could see that its light breast was somewhat streaked, the lines extending back to the flanks, where they were stronger. Its chin was white, and there was a dark line on its cheek. It had a finch bill, two wing-bars, and a long emarginate tail.

Who were the pair, and what did it all mean? Was this the same kind-hearted Chestnut Warbler that we had watched before, or is there a peculiar strain of human kindness in the blood of the Chestnut family? If he was the same bird, he certainly deserves a position at the head of an orphanage, for perhaps his combination with 'fresh air' work is a bit of Warbler wisdom that might be imitated.—FLORENCE A. MERRIAM, *Locust Grove, Lewis County, New York*.

Capture of a Second Specimen of the Hooded Warbler in Massachusetts.—Some time ago my friend, Mr. Wilmot W. Brown, Jr., of this city, showed me, among other interesting birds in his collection, a specimen of the Hooded Warbler (*Sylvania mitrata*) taken at Provincetown, Mass., by Mr. Harry C. Whorf of Winthrop. I have since obtained full particulars of the capture from Mr. Whorf, who kindly permits me to write this note. The bird was an adult male in high plumage, and was shot June 25, 1888, while busily catching insects in a thicket of scrub oaks and bushes. From the date of capture it would seem probable that the Warbler was breeding in the vicinity; but Mr. Whorf, who watched it for some time before shooting, saw nothing in its behavior to indicate that such was the case, the bird showing no signs of anxiety at his presence, nor any of the actions characteristic of a bird having a nest or young near by. There is, I believe, but one previous record of the occurrence of *Sylvania mitrata* in Massachusetts, that of a specimen taken in Brookline, June 25, 1879, as noted by Mr. Ruthven Deane (Bull. Nutt. Orn. Club, Vol. V, 1880, p. 117).—FRANK H. HITCHCOCK, *Somerville, Mass.*

Interesting Nesting Site of a Winter Wren (*Troglodytes hiemalis*)—Instead of being in "thick, coniferous woods," I found this nest in an upturned beech root in an open part of our deciduous woods. The tree had lodged after falling to an angle of about forty-five degrees, and the nest was stowed away in the earth among the rootlets. The beech was just off from an unused wood road that had grown up to jewel-weed (*Impatiens pallida*); and ferns filled the space up to the very edge of the gap from which the tree turned back, and formed a pretty fringe on top of the root. The May rains had turned the cavity beneath into a clear pool of water, and filled the swampy land back of the tree with similar pools where Red-eyed Vireos and Scarlet Tanagers came to bathe.—FLORENCE A. MERRIAM, *Locust Grove, Lewis County, New York*.

The Hudsonian Chickadee (*Parus hudsonicus*) in Vermont and Massachusetts.—While passing through a large larch swamp in Sutton, Vt., Aug. 16, 1888, I saw three or four Hudsonian Chickadees in company with a number of common Chickadees. A specimen shot proved to be a bird of the year. I do not remember to have seen any previous record of this species in the State of Vermont. From the date and from the nature of the locality it is probable that the birds bred there.

On October 18, 1889, I found two individuals of this species in a white

pine grove in Arlington, Mass. These also were among a flock of common Chickadees. The following day I shot one of them. The survivor remained in the same grove as late as the 22d. On the 17th of November of the same year I discovered another in a small grove composed of white pines, pitch pines and red cedars in Waverly, Mass. This bird remained in the same wood throughout the following winter. I saw it at frequent intervals up to April 5, 1890, when it disappeared together with a large flock of the common species—its associates throughout the winter. Very likely the Hudsonian came from the north with the Blackcaps in the autumn and returned with them in the spring (*cf.* Allen, Bull. Mus. Comp. Zool., II, 262). During its sojourn with us it was much less active and noisy than its Black-capped cousins and stuck more closely to the *evergreen* trees. While the Blackcaps made daily foraging excursions extending a quarter of a mile or more beyond the limits of the grove, the Hudsonian remained behind, silently awaiting their return. The peculiar tone of its voice affected even its simple *chip*, so that, after long acquaintance, I could trace the bird merely by this simple clue.

During a short trip with Mr. William Brewster to Mt. Graylock, Berkshire Co., Mass., Dec. 14-20, 1889, we found the Hudsonian Titmouse on four several days—three or four specimens in second-growth pasture spruces in the Notch (alt. 1600 ft.), and a flock, estimated at six to ten, in the 'Mountain Pasture' (alt. 2200 ft.).

Assuming that the Waverly bird was not the survivor of the pair seen in Arlington (the two localities are three and a half miles asunder), it makes the ninth, I believe, recorded from eastern Massachusetts. At least two unrecorded specimens have been killed in this neighborhood—one by Mr. S. F. Denton in Wellesley, Oct. 30, 1880, and one by Mr. Brewster in Belmont, Dec. 31, 1884. It has also been taken in Rhode Island and Connecticut. Instead of regarding this species as *accidental* in Massachusetts, as Mr. Allen does in his list of the birds of the State, I believe it to be a rare (perhaps irregular) bird of passage in the eastern part of the State, while probably considerable numbers descend in autumn along the spruce belt of the Green Mountains into northern Berkshire. That it *breeds* on Mt. Graylock I think improbable, as it was not found there in the summer by either Mr. Brewster or myself during several weeks spent in exploring the mountains in the years 1883, 1888, and 1889.—WALTER FAXON, *Museum of Comparative Zoology, Cambridge, Mass.*

Myadestes townsendii in Nebraska.—In looking over a small collection of mounted birds today (the property of Mr. L. Sessions, of Norfolk, Nebraska) I found a specimen of *Myadestes townsendii* which Mr. Sessions assures me he took in that vicinity in winter some years ago. Unless I am mistaken, this is rather out of its usual habitat and is worthy of record.—GEO. L. TOPPAN, *Chicago, Ill.*

The Long-billed Marsh Wren, Maryland Yellow-throat, Nashville Warbler and Great Blue Heron in Eastern Massachusetts in Winter.—On November 1, 1889, I found two Long-billed Marsh Wrens (*Cistothorus*

palustris), in the Fresh Pond Marshes, Cambridge, several weeks after the migration of this species was supposed to be over. One of them was in full song. I again came upon one of them, Nov. 8, near the same place, and, on examining the close cover formed by the dried and matted cat-tail flags, I began to suspect that a few of these birds might winter there. I again met with one on three successive days in December (Dec. 8, 9 and 10) in another part of the same marshes. These days were warm for the season, although the marshes had been frozen over, and the brave little bird was still singing with almost as much ardor as in spring. I next saw the Wren on January 2 and 3, 1890. Wondering whether its presence here in midwinter was an accident or no, I bethought myself of another similar cat-tail swamp in Arlington, near the Medford line, and a visit to this place on January 7 was rewarded by the finding of a Long-billed Marsh Wren there also. This bird I shot on the 13th of January. It proved to be a male — fat and in fine plumage. Its stomach was still filled with the remains of coleopterous larvæ. The bird was again seen in the Fresh Pond marshes on the morning of March 4, when my thermometer registered 4° F. and about a foot of snow lay on the ground.

I believe that the Long-billed Marsh Wren has not hitherto been found wintering in the East further north than the Carolinas, but the western race (*C. p. paludicola*) is said by Cooper (Geol. Surv. Cala. Orn., I, 75) to winter on the Pacific coast as far north as the Columbia River, in marshes overgrown with *tulé* (*Scirpus palustris*). Dr. Merrill (Auk, V, 362) also observed that a few passed the winter at Fort Klamath, Oregon, where the winters must be very severe. The rôle of the *tulé* is played in the East by the cat-tail flags (*Typha latifolia* and *T. angustifolia*).

On January 31, 1890, I shot a young male Maryland Yellowthroat (*Geothlypis trichas*), in the Fresh Pond swamps, Cambridge. When found he was in the company of White-throated, Swamp, Song, and Tree Sparrows, sticking closely to the tall weeds and dense shrubbery, under which he would run about on the ice, leaving the imprint of his delicate little feet on the thin coat of snow. He was in beautiful plumage, and plump, although the mercury within a week had fallen to 5° F. (probably lower in the swamp). Cf. Auk, I, 389.

On the same day (Jan. 31) I found a dead Nashville Warbler (*Helminthophila ruficapilla*), in Swampscott, Mass., with its neck broken and wedged between two twigs of a barberry bush—clearly the work of a Shrike. Mr. Brewster, who now has the bird's skin, was sure that it could not have been dead over two weeks. In the stomach were many land snail shells, 1.5 mm. long, belonging to the genus *Pupa*.

The Great Blue Heron (*Ardea herodias*) is a bird that rarely favors us with his presence in the winter months. It may be worth while, then, to chronicle the capture of one in the Arnold Arboretum, West Roxbury, Mass., either December 31, 1889, or January 1, 1890. A tub of water stocked with minnows served to keep him alive for five or six days, when he suddenly died either from cold or the enervating effects of imprisonment. His body afterwards came into my possession. A previous record

of this species in Massachusetts in winter will be found in Bull. Nuttall Orn. Club, VIII, 149.

The winter of 1889-90 was on the whole a very mild one, with but little snow, yet marked by great and sudden changes of temperature. The mercury stood at 5° F. or thereabouts on several nights, and on the 22d of February it fell to -7°. It is worthy of note that the Yellowthroat, Nashville Warbler and Blue Heron above-mentioned were all birds born during the preceding summer. It seems reasonable to suppose that many young birds annually get left behind when the autumnal migration occurs. In such an event they might survive the following winter if it should prove to be a mild one, while the stoutest heart among them would probably succumb to the rigors of a genuine 'old-fashioned' New England winter.—WALTER FAXON, *Museum of Comparative Zoölogy, Cambridge, Mass.*

Two Notes from South Carolina.—I shot a male *Dendroica caerulescens* on December 6, 1889, at Pinopolis, a few miles from Charleston. The weather was very cold at the time, and was the coldest of the winter of 1889-90, up to March. This species ordinarily passes through here as late as the middle of October.

On May 9, 1890, Mr. W. F. Colcock brought me an adult male Rose-breasted Grosbeak. It was shot in Saltkehatchie Swamp which is only a few miles from tide-water. A few days later another male was seen. This is the first record for lower South Carolina. It is only found in the mountainous portions of the State.—ARTHUR T. WAYNE, *Tennessee, S. C.*

CORRESPONDENCE.

A Query in regard to the Least Tern.

TO THE EDITORS OF THE AUK:—

Dear Sirs:—I wish to inquire about a peculiarity in the nesting habits of the Least Terns or, as they are commonly known here, the 'Little Sea Gulls.' They generally arrive here about May 6 (this year, May 13) to breed on the sand bars of the Mississippi River. If the water is off the bars they begin laying about the middle of June, and they continue to lay until August, for I have found their eggs as late as the middle of the latter month. I have generally found three or four, and often five, eggs in a nest. The nest is only a little hollow scooped out in the sand. In July, when most of them are laying and have eggs, if you walk over the bars they fly close to you and almost strike you with their wings, making a loud noise as if they were terribly annoyed by your presence and wished to drive you away.

Upon examining the eggs you will find perhaps half of them have a spot of water on them. How did it get there? Is it put there by the parent bird, and if so, for what purpose? I have questioned persons who were,

I thought, ornithologists of some authority, but got no satisfactory answers. One even wrote to me that perhaps it was dew formed on the eggs. Just think of dew, at midday, on the sand blazing under a semi-tropical sun, with not a particle of shade except when the sky is overcast! Cannot any of your readers throw some light on the subject?

The young are just the color of the sand. I have followed their trails through the sand for fifty or a hundred yards and found the little downy fellows with not a feather on them. How they escape the foxes, raccoons, and opossums, besides the numerous Hawks, is more than I can tell.

Yours respectfully,

GIDEON MABBETT.

Rodney, Mississippi.

NOTES AND NEWS.

WILLIAM KITCHEN PARKER, F. R. S., an Honorary Member of the American Ornithologists' Union died suddenly July 3, 1890, at Cardiff, Wales, at the age of 67 years. He was born at Dogsthorpe, near Peterborough. While still a youth he was apprenticed to a chemist. Later he studied medicine, settling at Pimlico in 1849. In natural history he was at first deeply interested in botany, and later on in the study of the Foraminifera, to which his earlier papers relate. In 1865 he began the publication of a series of valuable papers on the morphology of the skull in Vertebrates, beginning with the Ostrich, and including the Parrot, the Common Fowl, and representatives of the principal types of Vertebrates, from mammals to fishes. In 1868 he brought out his well-known wonderful, 'Monograph on the Structure and Development of the Shoulder-girdle and Sternum in the Vertebrata.' He was also the author of the article on the Anatomy of Birds in the last edition of the 'Encyclopædia Britannica.' His contributions to ornithology are mainly anatomical, and include among others the following: 'On the Osteology of *Baleniceps rex*,' 1860-62; 'On the Osteology of the Genera *Pterocles*, *Syrhaptes*, *Hemipodius*, and *Tinamus*,' 1862; 'On the Systematic Position of the Crested Screamer (*Palamedea chavaria*),' 1863-64; 'On the Skeleton of the *Archaeopteryx* and on the relation of the Bird to the Reptile,' 1864; 'On the Osteology of the Kagu (*Rhinocetus jubatus*),' 1864; 'On the Structure and Development of the Skull in the Ostrich Tribe,' 1866; 'On the Osteology of Gallinaceous Birds and Tinamous,' 1866; 'On *Ægithognathous* Birds,' 1873-76; 'On the Development of the Wing in the Common Fowl,' 1888; 'On the Systematic Position of the Swifts,' 1889. In 1877 he summarized the results of his previous studies in a volume on 'The Morphology of the Skull.' He also left unpublished memoirs on the Morphology of the Anatidæ and the Alcidæ. In 1874 he was appointed Hunterian Professor of Comparative Anatomy at the Royal College of Surgeons. He was elected a Fellow of the Royal Society in 1865, and for a time was Pres-

ident of the Royal Microscopical Society. His skill as a draughtsman gave him great advantage in the illustration of his papers, which have contributed so eminently to the embryology and the morphological relations of the Vertebrata. He is said to have been an enthusiastic and entertaining lecturer; as a man, large-hearted, liberal-minded and modest; as a naturalist, philosophic to a high degree, and a devoted searcher after truth for its own sake. "Deprived of the advantages of a University education, and without any of those aids to learning which are afforded by the Science Schools of the present day, he owed all the knowledge which he acquired to an intense love of Nature prompting and developing a taste for original research, which, in spite of many obstacles, he assiduously cultivated to the last. Few men probably have commenced a scientific career under greater difficulties than he must have experienced; but his indomitable energy and perseverance, combined with natural talent, eventually placed him in the foremost rank of modern scientists."

THE EIGHTH CONGRESS of the American Ornithologists' Union will be held in Washington, D.C., beginning Tuesday, November 18, 1890. A large attendance of both Active and Associate Members is anticipated. Aside from the reports of Standing Committees and the usual business routine, important amendments to the By Laws will come up for consideration, and reports from Special Committees, including the Report of the Committee to devise and recommend a uniform system for measurements of birds. A good display of photographs of birds in life, including stereopticon illustrations, may be expected, if members will cordially co-operate with the Committee having the matter specially in charge. (See *Auk*, VII, p. 100.) Members, both Active and Associate, are requested to send the titles of papers they propose to present at the meeting to the Secretary, Mr. John H. Sage, Portland, Conn., some days in advance of the meeting, so that a programme of papers may be prepared. The utility of such a programme was well demonstrated at the last Congress, but its preparation will depend upon the necessary co-operation of members in promptly forwarding the titles of their papers.

THE SECOND INTERNATIONAL ORNITHOLOGICAL CONGRESS will be held at Budapest in May, 1891, the session beginning at Whitsuntide. The Hungarian Committee of the Congress has already issued a circular of information, inviting each Ornithological Society throughout the world to send a representative delegate, and each specialist in ornithology to be present personally. The Hungarian Committee, with their headquarters at the Hungarian National Museum, has already begun preparations for the reception of the Congress, under the direction of four Sub-Committees, as follows: I. Scientific Committee: President, Mr. Otto Herman, M. P.; Secretary, Dr. Julius Madarász. II. Economic and Financial Committee: President, Mr. Fridor Máday. III. Committee of Correspondence: President, Mr. John Xántus. IV. Exhibitions Committee: (a) for the exhibition of mounted skins, President, Mr. John Frivaldszky, Curator of the Zoölogical Section of the Hungarian National Museum; (b) for the exhibition of living birds, President, Mr. Charles Serák, Director of the Zoölogical Gardens.

The exhibition will embrace the full Hungarian *Ornis* as far as known up to the day of opening. Abnormalities and interesting aberrations

will be grouped separately, as a special part of the exhibition. The results of the combined observations on bird migration made during the spring of 1890 will be graphically represented, and illustrated with specimens of the birds to which they relate. The observations made fall into two groups: (1) Those made along a diagonal line between the mouth of the River Drau and Lake Ferto, from the middle of February to the middle of May. (2) The combined observations of fifteen ornithologists, made at their respective places of residence during the same period. During the sitting of the Congress several excursions will be made to such parts of the country as present features of special ornithological interest. Count Béla Széchényi proposes a general fowl and bird shooting excursion on Lake Ferto, and another for Bustard shooting in the same vicinity.

The President of the Hungarian Committee is his Excellency the Minister of Agriculture, Count Andrew Bethlen. The Vice-Presidents are Mr. Em. Szalay, Counsellor of the Ministry of Public Instruction; Prof. Géza Entz, of the Polytechnic High School; and Mr. Charles Kammermeyer, the Mayor of Budapest. The Secretary is Mr. Stephen Chernel.

A detailed programme of the proceedings at the Congress will soon be arranged, giving further information.

THE REAL character of the European House Sparrow is at last attracting, at least in some quarters, the attention of legislators. While the bird has for some time been made an outlaw by legislative action in several of the States, and the offering of bounties for their wholesale destruction has been agitated in others, the Massachusetts Legislature, after an extended discussion of the matter, has passed an act entitled 'An act providing for the extermination of the English Sparrow in the Commonwealth.' The act provides as follows:

"Section 1. In all cities of the Commonwealth the officers having charge of the public buildings, and in all towns thereof such officers as the selectmen shall designate and appoint, shall take and enforce such reasonable means and use such appliances as in their judgement may be effective for the extermination of the English Sparrow therein; but in so doing poisons shall not be used.

"Sect. 2. Any person who shall wilfully resist the persons in any city or town charged with the execution of the provisions of this act, while engaged therein, or who shall knowingly interfere with the means used by them for said purpose, to render the same less effective, shall be punished by fine not exceeding twenty-five dollars for each such offense.

"Sect. 3. Nothing in this act shall be so construed as to allow an officer to enter on private property without consent of the owner or occupant thereof."

While extermination may not be effected, it seems possible to greatly lessen the numbers of the pest wherever systematic effort is made for their destruction. Even persistent removal of their nests is found not only to check their increase but to lead them to forsake favorite haunts.

AMONG the more important ornithological works in progress or projected may be mentioned the following as of special interest. As noticed in the present number of 'The Auk' (p. 379), the fifteenth volume of the British Museum Catalogue of Birds, by Dr. Sclater, devoted to the Tra-

cheophonine Passeres, has recently appeared. Volume XIII, by Mr. R. B. Sharpe, which includes the Ploceidæ, Sturnidæ, and the Pseudoscines, and completes the series of volumes on the Passeres (fifteen in number), has also just been issued. The Picariæ, it is expected, will occupy five volumes (Vol. XVI—XX), several of which are already in course of preparation. Mr. Salvin will treat the Hummingbirds, Swifts, and Goatsuckers; Mr. Hargitt will prepare the volume on the Woodpeckers; Mr. Sharpe will take the Anisodactylæ and Heterodactylæ, and Capt. Shelley the Zygodactylæ. Count Salvadori will prepare the volume on the Parrots.

Of monographs in course of publication mention may be made of Sharpe and Wyatt's Monograph of the Hirundinidæ, now approaching completion; Bartlett's Monograph of the Weaver-birds and Finches; Pelzeln and Madarász's monograph of the Pipridæ or Manakins. Mr. Sharpe has in preparation a monograph of the Birds of Paradise, to be published by Sotheran & Co. of London. Mr. Seebohm has in press 'The Birds of the Japanese Empire,' to be issued in one royal octavo volume, and is preparing a monograph of the Thrushes, with colored illustrations of all the species. Mr. Dresser, it is announced, is preparing a supplementary volume to his 'Birds of Europe.'

THE READERS of 'The Auk' will be pleased to learn that Congress has appropriated \$25,000 for carrying on the work of the Division of Economic Ornithology and Mammalogy for the year beginning July 1, 1890, the appropriation being made specifically "for investigating the geographical distribution of animals and plants." In other words, the indefatigable Chief of the Division, Dr. C. Hart Merriam, may be congratulated on having at last realized his hope of establishing in effect a 'Biological Survey' of the United States. He has already five trained collectors in the field, and is himself at present in east central Idaho superintending the work of his assistants in this almost unexplored region.

During the past year he has established a serial publication under the title 'North American Fauna,' the first and second numbers of which are dated October, 1889, and the third, August, 1890. The first two relate entirely to mammals, the last contains two papers on birds and a general preliminary discussion of the life areas of North America, incidental to a special report on 'Results of a Biological Survey of the San Francisco Mountain Region and Desert of the Little Colorado in Arizona,' based on his explorations of last season. The 'North American Fauna' is intended to provide a medium of publication for the scientific results of the investigations of the Division, to consist of faunal papers and other technical matter of special interest to naturalists, while the more purely economic results will appear in bulletins and special reports. A fourth number of the 'Fauna,' we understand, is already in press.

MR. JONATHAN DWIGHT, JR., finding that he cannot devote his time to the proposed study of the genus *Junco*, (see *Auk*, Vol. VII, p. 219) desires that those who contemplated sending material for this purpose will withhold it until some future time.

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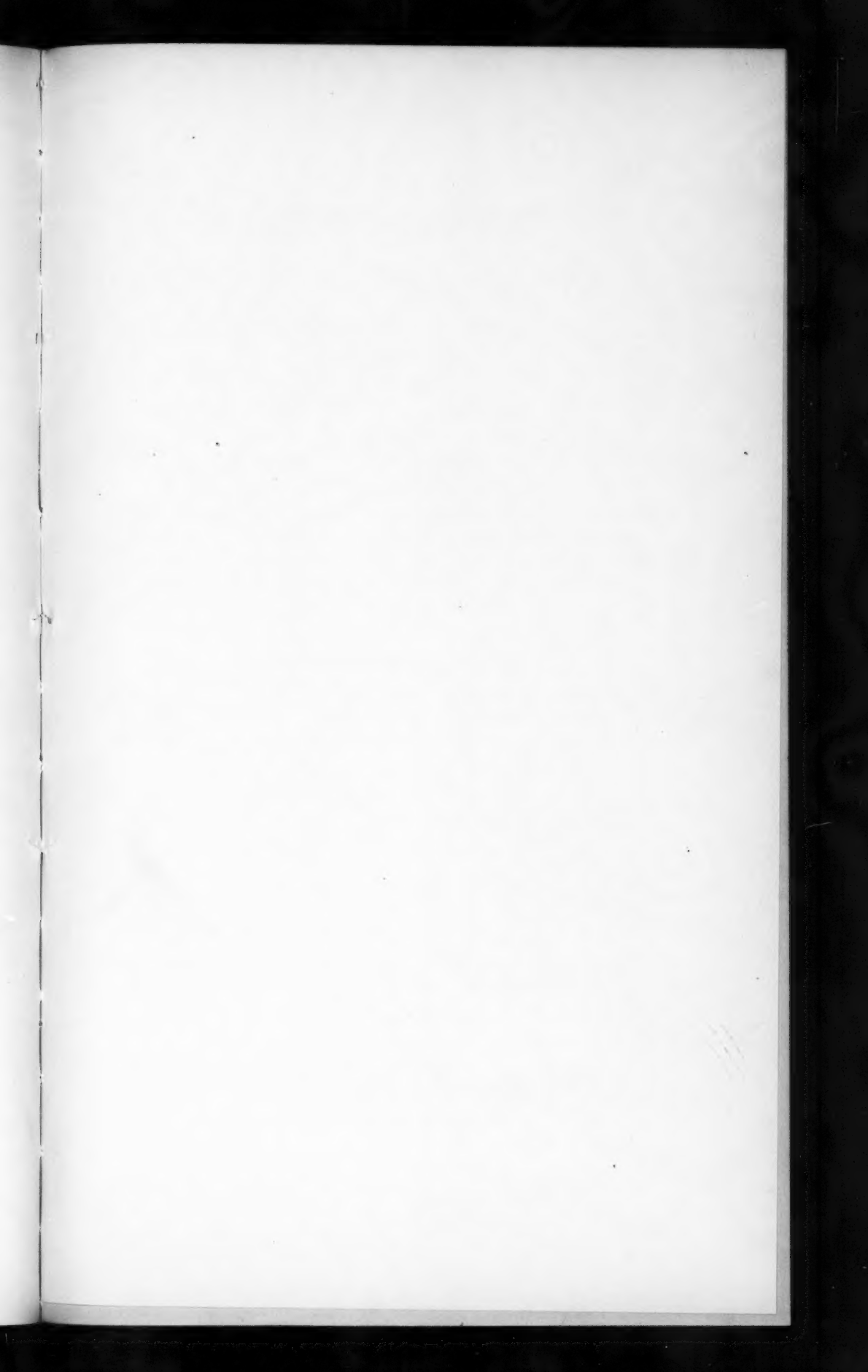
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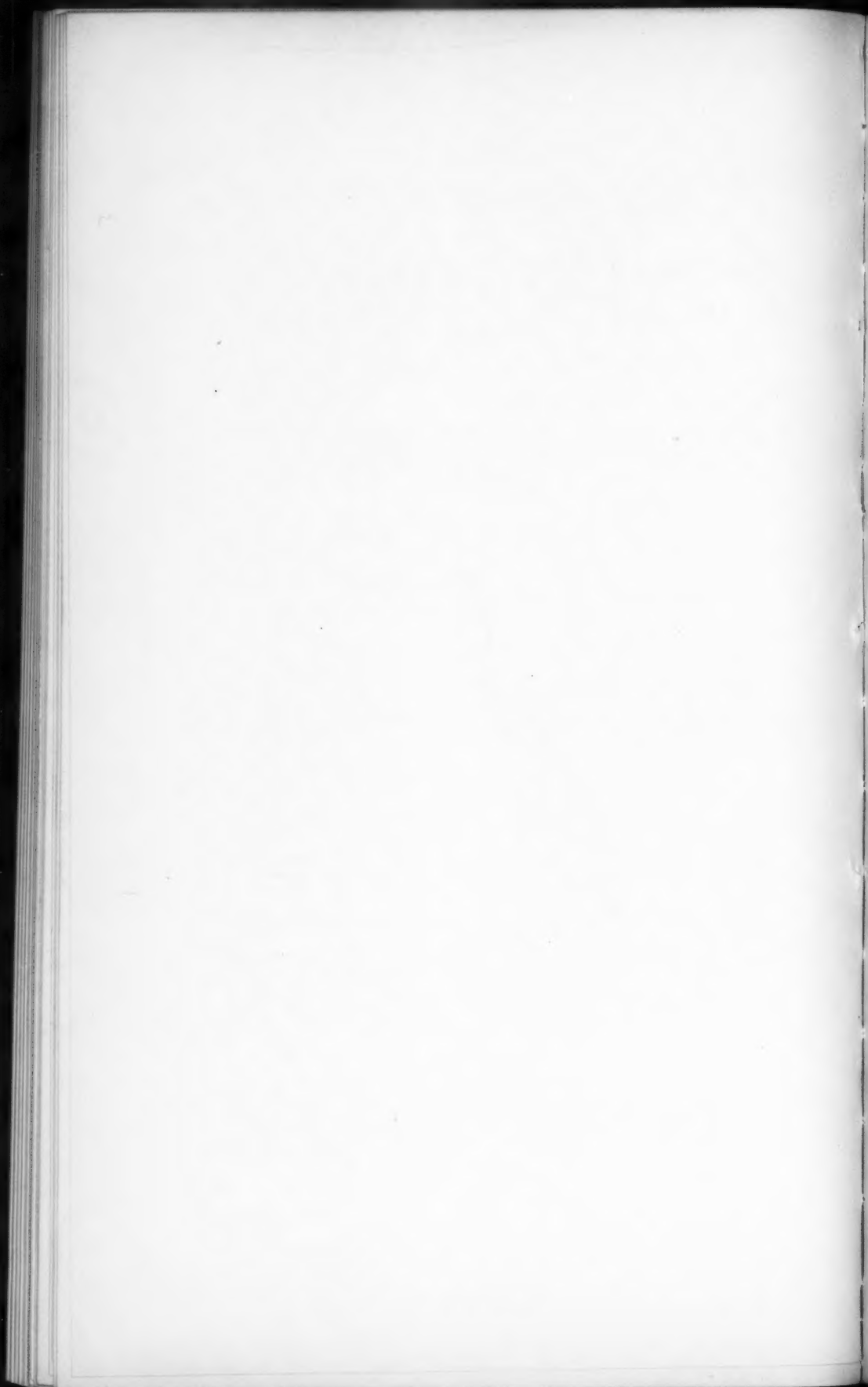
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